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SEMIANNUAL MONITORING REPORT

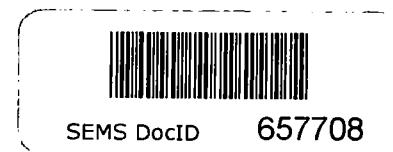
**CIBA-GEIGY FACILITY
AT
180 MILL STREET
CRANSTON, RHODE ISLAND**

MONITORING RESULTS

FOR

JANUARY - JUNE 1999

**CIBA SPECIALTY CHEMICALS CORPORATION
TOMS RIVER, NEW JERSEY 08754**



REC'D 7-9-99
F.B.I.

Ciba

SEMIANNUAL MONITORING REPORT

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180 MILL STREET
CRANSTON, RHODE ISLAND**

MONITORING RESULTS

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**CIBA SPECIALTY CHEMICALS CORPORATION
TOMS RIVER, NEW JERSEY 08754**

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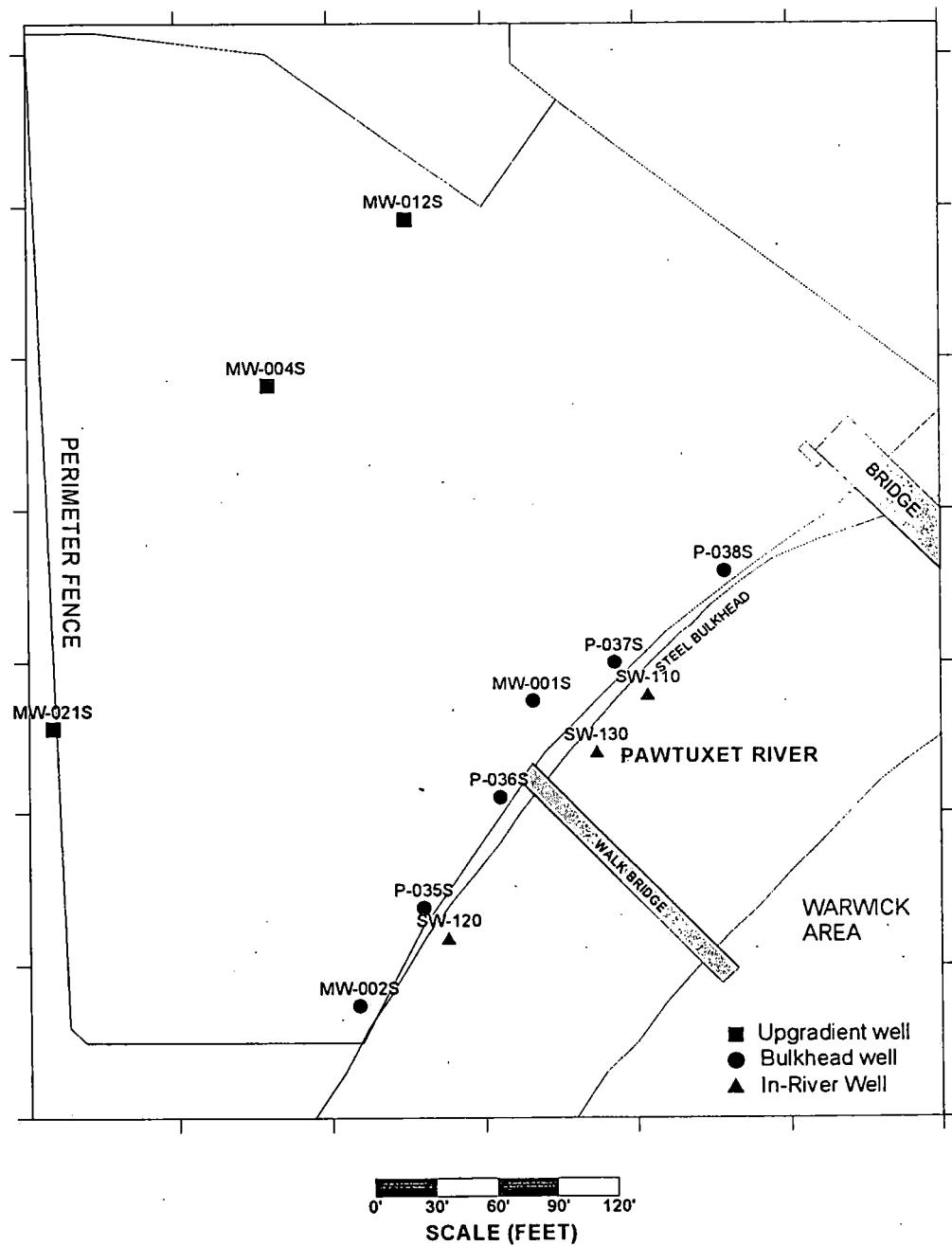
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- Appendix A Tabulated Groundwater Elevation Data and Potentiometric contours
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- Appendix C Time-Series Graphs and Data for Upgradient Wells
- Appendix D Time-Series Graphs and Data for Bulkhead Wells
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WELL LOCATION MAP

CIBA SPECIALTY CHEMICALS CORPORATION
(FORMERLY CIBA-GEIGY CORPORATION)
CRANSTON, RI FACILITY
FORMER PRODUCTION AREA

Chemical Well Monitoring Network



1.0 SUMMARY

On June 16, 1989, the USEPA and Ciba-Geigy Corporation (now Ciba Specialty Chemicals Corporation (Ciba)) entered into an Administrative Order on Consent (AOC) that required, in part, Ciba to conduct a Corrective Measures Study (CMS) and propose Media Protection Standards (MPSs) for the former manufacturing facility at Cranston, RI (the Facility). MPSs for five chemicals of concern (COC) were developed and are the focus of the semiannual monitoring at the Facility.

The semiannual monitoring episode for the first half of 1999 was performed on April 15-16, 1999, at which time 12 wells were sampled and analyzed by Rhode Island Analytical for a suite of chemicals including the COC.

The results of the sampling show no significant change in chemical concentrations for COC at the 12 wells over the 3 years since Ciba has operated the Groundwater Extraction and Treatment System (GETS) at the Facility. However, since the previous monitoring episode performed in October 1998, the number of exceedance for the MPSs for the 12 wells has decreased from 9 exceedances in 5 wells to 5 exceedances in 3 wells.

The next groundwater monitoring event will be in October 1999.

2.0 OBJECTIVE

The objective of the monitoring program is to evaluate the GETS on controlling releases to the Pawtuxet River while long-term corrective measures to areas of concern are being evaluated, specifically SWMU-11.

3.0 INTRODUCTION

In August 1996 Ciba submitted to the USEPA a Pawtuxet River Corrective Measures Study (PRCMS) Report. In the PRCMS report (Section 3.5.1, page 3-12) Ciba proposed to measure groundwater elevations in the former Production Area quarterly during the first two years following startup of the groundwater capture system and then semiannually until the groundwater capture and pretreatment system were shutdown. Data collected during hydraulic monitoring from 23 wells are evaluated periodically to verify that the shallow contaminated groundwater in the former Production Area is hydraulically controlled from discharging into the Pawtuxet River.

Inclusive of the PRCMS Ciba also proposed to monitor groundwater quality at the Facility. Groundwater is sampled semiannually from 12 selected overburden monitoring wells

(Groundwater Sampling and Analysis Plan (GSAP)) to evaluate changes in groundwater quality, specifically in COC.

4.0 MEDIA PROTECTION STANDARDS

During the RCRA Facility investigation, MPSs¹ were developed for five chemical contaminants detected in the Production Area groundwater. These contaminants and their respective MPSs are summarized below and discussed in detail in the PRCMS Report, Section 2.4.1.

Table 1

**Media Protection Standards
for the
CIBA-GEIGY, Cranston R.I. Facility
Former Production Area**

Compound	MPSs Concentration (ppb)
1,2-dichlorobenzene	94
chlorobenzene	1700
ortho-chlorotoluene	1500
toluene	1700*
xylenes	76

* Rhode Island Groundwater Objective GB - Groundwater classified as GB has been designated by the Rhode Island Department of Environmental Management (RIDEM) as not suitable for public or private drinking water use.

5.0 MONITORING RESULTS FOR APRIL 1999

This report presents the results of the hydraulic monitoring that was performed on April 20, 1999. It also summarizes the groundwater results for the COC sampling that was performed on April 15-16, 1999. The hydraulic results are compared to pre-pumping baseline conditions

¹ From the Public Health and Environmental Risk Evaluation (PHERE) that concluded the sole receptor impacted by contaminated groundwater were benthic invertebrates in the shallow sediments of the Pawtuxet River.

dated September 30, 1993. The COC data are compared to previous compliance sampling rounds dating back to March 1996, when the GSAP program was initiated.

5.1 Hydraulic Monitoring

Piezometric contours for the overburden aquifer were created from data collected on April 20, 1999, from 23 groundwater monitoring wells using Golden Software, Inc., SURFER FOR WINDOWS, Version 5.01 software.

The tabulated groundwater elevation data and the associated potentiometric contours, Figures 1 and 2, are included in Appendix A.

The kriging contour algorithm was used as a best fit method of approximating the directional groundwater flow pattern. The baseline results in Figure 1 show groundwater flow from northwest to southeast to the Pawtuxet River. Figure 2 shows the effect of the 2 extraction wells on the groundwater flow. While extraction well, PW-110, north of the walk bridge shows groundwater capture (nominal capacity 53 GPM), the second extraction well, PW-120, south of the walk bridge has a moderate effect at best (nominal capacity 3-5 GPM) on groundwater capture.

The above results are borne out by groundwater modeling (not included in this report) and the capture falls somewhat short along the bulkhead in the south. Ciba will shortly (August 1999) install a third extraction well, south of the walk bridge, to improve the groundwater capture in this area.

5.2 Chemicals Of Concern Monitoring

Twelve wells were sampled as part of the GSAP. The wells are divided into three groups, as shown in the Location Map of Section iii, and the April 1999 COC analytical results are included in Table 2 at the end of section 5.

A discussion of the COC results are as follows:

The Bulkhead wells are six in number and 5 of the 6 wells are meeting the MPS numbers. The exception is well MW-002S located at the southeast corner of the former Production Area. Well MW-002S had exceedances in 1,2-dichlorobenzene (140 ppb vs 94 MPS) and chlorobenzene (2260 ppb vs 1700 MPS). The history of this well shows chlorobenzene exceedances in 4 of the 7 sampling events inclusive of the last 2 events, therefore no improvement for chlorobenzene is observed. The 1,2-dichlorobenzene exceedance was only the second in 7 sampling events and this exceedance needs confirmation.

Three wells are designated upgradient to the Bulkhead wells, and 2 of the 3 wells show exceedances in the MPSs for o-chlorotoluene and/or xylenes. Well MW-021S is located adjacent to the east perimeter fence and directly south of the SWMU-11 source area. This well was high in both o-chlorotoluene (9000 ppb vs 1500 MPS) and xylenes (520 ppb vs 76 MPS) for the last two sampling events, exceeding the MPSs in both events. Well MW-004S is downgradient to the SWMU-11 source area and was high for xylenes (730 ppb vs 76 MPS). This well has consistency exceeded the MPS for xylenes and no improvement is observed or expected until the source area is remediated.

The three In-River wells did not have exceedances in any of the MPSs. In fact, since semiannual monitoring was initiated in March 1996 the 3 In-River wells have not exceeded any MPS for any of the COC.

Table 2
Monitoring Results for April 1999
Chemicals Of Concern
(as ppb)

Well Location	Well Number	MPS	94 1,2-dichloro- benzene	1700 chloro- benzene	1500 o-chloro- toluene	1700 toluene	76 xylenes
Upgradient	MW-004S		50 U	50	50	50 U	730
	MW-012S		10 U	12	10 U	10 U	24
	MW-021S		50 U	50 U	9000	50 U	520
Bulkhead	MW-001S		50 U	1100	50 U	50 U	50 U
	MW-002S		140	2260	10 U	420	33
	P-035S		20	480	10 U	10 U	10 U
	P-036S		10 U	200	10 U	10 U	10 U
	P-037S		10 U	210	10 U	10 U	10 U
	P-038S		1 U	1 U	1 U	1 U	1 U
In-River	SW-110		50 U	670	50 U	50 U	50 U
	SW-120		10 U	92	10 U	10 U	10 U
	SW-130		1 U	5	5	1 U	1 U

U = Nondetect with detection limit given

J = Estimated value

6.0 DISCUSSION OF RESULTS

The April 1999 Certificate Of Analysis by R.I. Analytical is included in Appendix B. The cumulative results from 1996 to the present for 12 wells and 5 COC are included as Tables 3, 4, and 5 in Appendices C, D, and E respectively . The cumulative results of each COC are plotted as Time-Series graphs for a better perception of trends, if any, over the sampling history since the inception of the groundwater extraction system in September 1995. These plots are also found in the respective Appendices C, D, and E.

A review of the upgradient wells (Table 3, Appendix C) indicates improvement in MW-004S in both o-chlorotoluene and toluene contamination, while MW-021S is showing the opposite results.

Trends in concentration are not apparent in the 6 Bulkhead wells (Table 4, Appendix D). The MPSs are being met in all but well MW-002S.

The good news is in the 3 In-River wells (Table 5, Appendix E) where most of the analytical is nondetect in COC. The contaminant with the most noticeable presence is chlorobenzene, but the concentrations are decreasing in these wells. Well SW-110, where chlorobenzene values near the MPS (1600 ppb vs 1700 MPS) were first observed in March 1996, are now about 1/3 as much.

7.0 CONCLUSION

Groundwater quality as measured by the exceedance in MPSs for groundwater monitoring in the former Production Area has improved over time. Hydraulic capture falls short at the bulkhead and the introduction of a third purge well expected by August 1999 should improve these results.

The next surface water sampling of the river is scheduled for October 1999.

APPENDIX A

TABULATED

GROUNDWATER ELEVATION DATA

AND

POTENIOMETRIC CONTOURS

CIBA SPECIALTY CHEMICALS CORPORATION
(FORMERLY CIBA-GEIGY CORPORATION)
180 MILL STREET
CRANSTON, RI

GROUNDWATER MONITORING

April 20, 1999

September 30, 1993

MONITORING WELL	TOC MSL FEET	TOC TO WATER FEET	GW ELEVATION MSL FEET	GW ELEVATION MSL FEET
MW-001S	15.04	7.68	7.36	9.39
MW-002S	14.46	6.84	7.62	9.21
MW-003S	16.61	8.15	8.46	7.96
MW-004S	21.29	10.49	10.80	10.72
MW-010S	22.62	11.29	11.33	11.34
MW-012S	22.54	11.65	10.89	10.54
MW-013S	18.44	9.71	8.73	9.83
MW-020S	21.94	10.40	11.54	11.53
MW-022S	16.87	7.15	9.72	9.63
MW-023S	20.71	11.50	9.21	9.41
MW-024S	21.04	10.00	11.04	10.89
MW-034S	18.85	8.38	10.47	10.4
P-001S	16.41	8.58	7.83	9.17
P-002S	13.85	6.55	7.30	8.38
P-003S	15.45	8.10	7.35	7.09
P-004S	19.92	8.66	11.26	11.07
P-005S	21.18	11.18	10.00	10.68
P-006S	23.62	12.90	10.72	10.39
P-034S	17.15	7.35	9.80	10.12
P-035S	15.32	7.92	7.40	8.51
P-036S	15.91	8.46	7.45	8.62
P-037S	15.69	11.20	4.49	8.96
P-038S	16.19	8.60	7.59	8.74

Figure 1

CIBA SPECIALTY CHEMICALS CORPORATION
CRANSTON, RI FACILITY
FORMER PRODUCTION AREA

Pre-Pump & Treat Potentiometric Surface Map
September 30, 1993

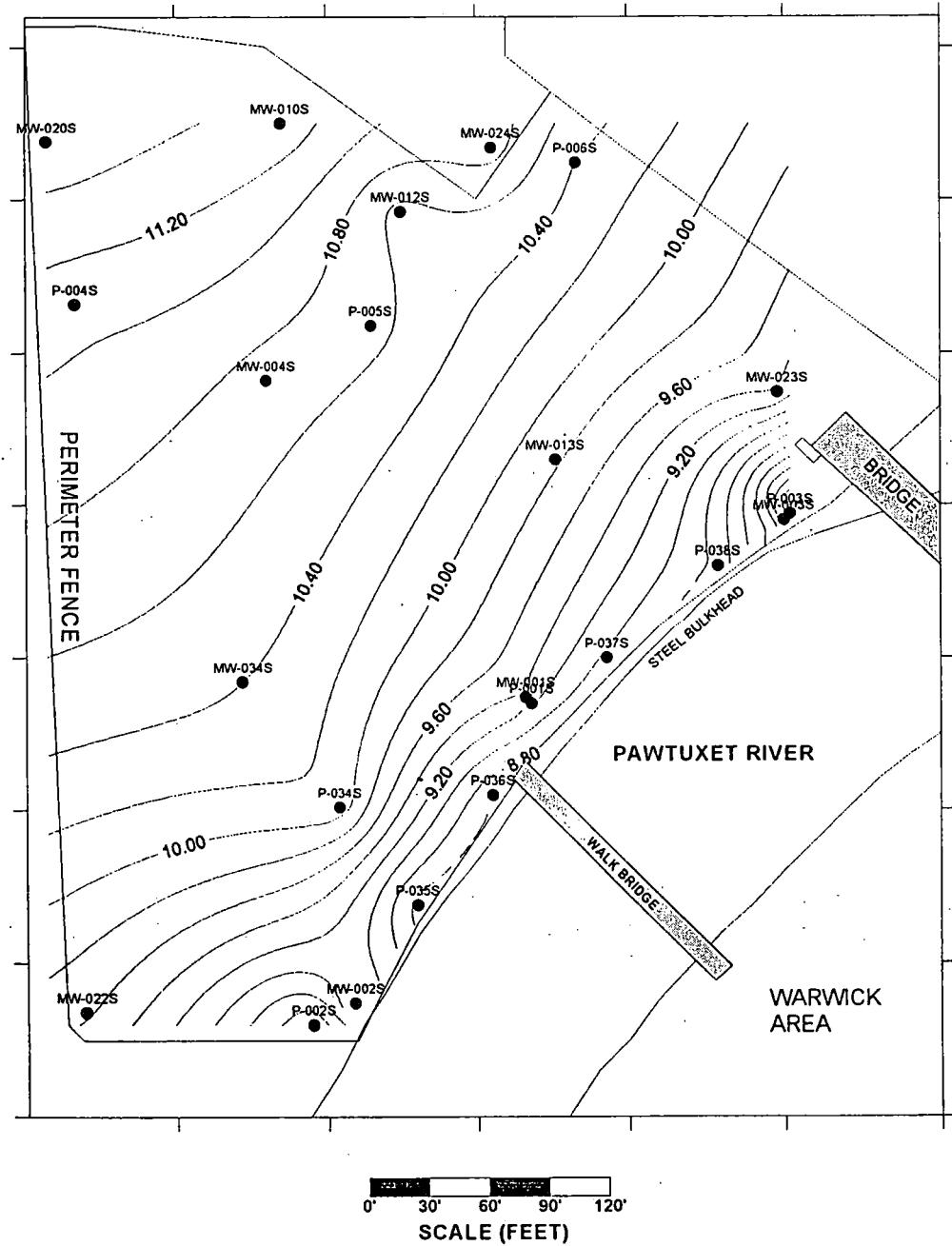
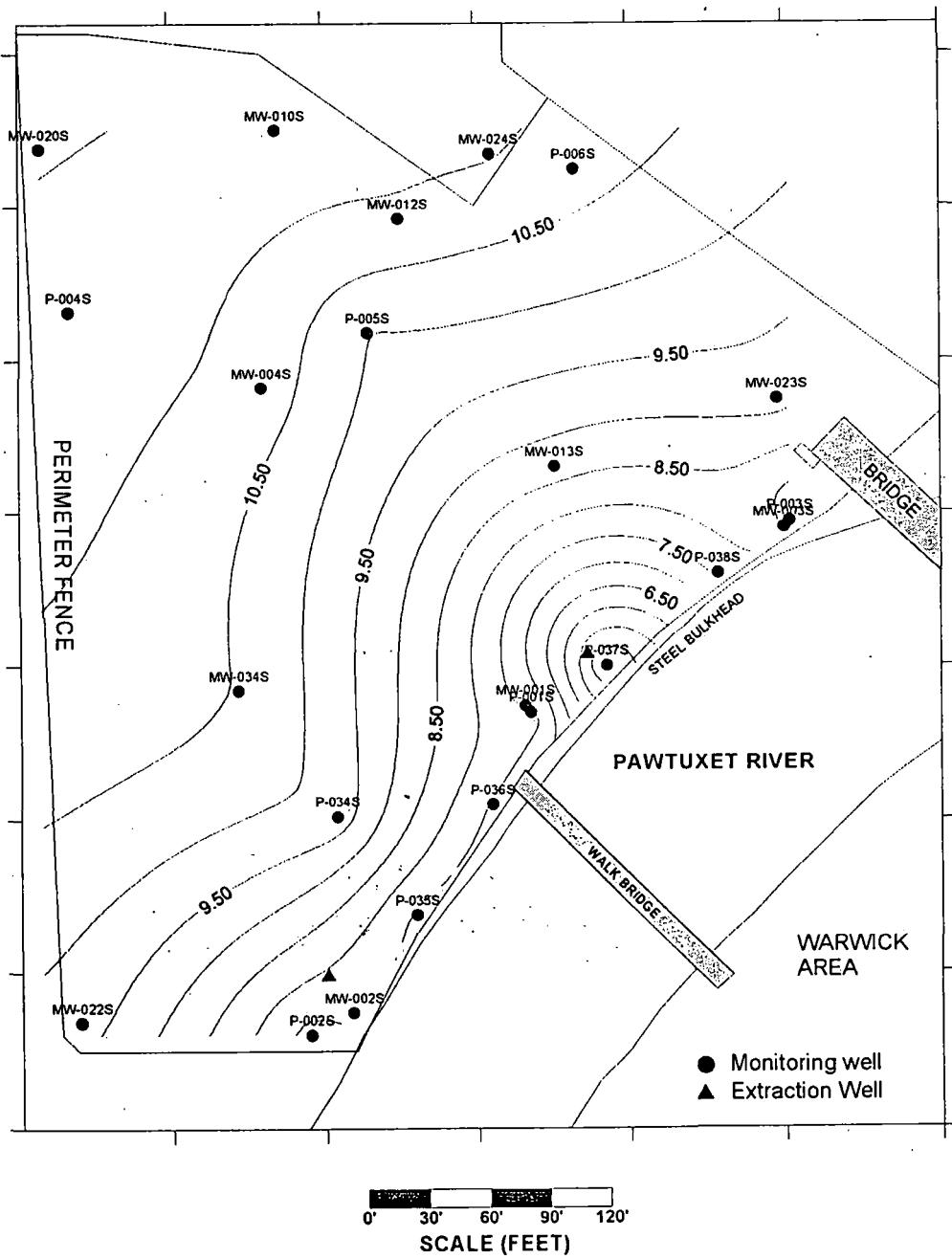


Figure 2

**CIBA SPECIALTY CHEMICALS CORPORATION
CRANSTON, RI FACILITY
FORMER PRODUCTION AREA**

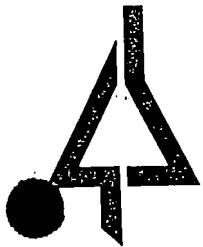
Potentiometric Surface Map
April 20, 1999



APPENDIX B

CERTIFICATE OF ANALYSIS

R. I. ANALYTICAL



R.I. Analytical

Specialists in Environmental Services

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
Attn: Mr. Barry Cohen
Environmental Building #743
Route 37 West
Toms River, NJ 08754

Date Received: 4/16/99
Date Reported: 5/03/99
P.O. #: T18-27T1124
Work Order #: 9904-03334

DESCRIPTION: CIBA SITE-CRANSTON (SEVENTEEN GROUNDWATER SAMPLES)

Subject sample(s) has/have been analyzed by our laboratory with the attached results.

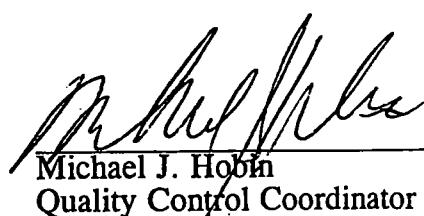
Reference: All parameters were analyzed by U.S. EPA approved methodologies. The specific methodologies are listed in the methods column of the Certificate Of Analysis.

If you have any questions regarding this work, or if we may be of further assistance, please contact us.

Approved by:

James E. Mich
Vice President

enc: Chain of Custody


Michael J. Hobin
Quality Control Coordinator

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 001

SAMPLE DESCRIPTION: MW-02S GRAB 4/15/99 @0930

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.0		SU	EPA 150.1	4/15/99 9:30	PAP
SPECIFIC CONDUCTANCE	590	1	µMHOS/CM	EPA 120.1	4/15/99 9:30	PAP
TEMPERATURE (field)	49.0		F	EPA 170.1	4/15/99 9:30	PAP
Dissolved Oxygen	<1.0	1.0	mg/l	EPA 360.1	4/15/99 9:30	PAP
Volatile Organic Compounds						
chloromethane	<100	100	ug/l	8240	4/28/99 4:52	RAM
bromomethane	<100	100	ug/l	8240	4/28/99 4:52	RAM
vinyl chloride	790	10	ug/l	8240	4/28/99 4:52	RAM
dichlorodifluoromethane	<100	100	ug/l	8240	4/28/99 4:52	RAM
chloroethane	<100	100	ug/l	8240	4/28/99 4:52	RAM
methylene chloride	<10	10	ug/l	8240	4/28/99 4:52	RAM
trichlorofluoromethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,1-dichloroethylene	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,1-dichloroethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
trans-1,2-dichloroethylene	140	10	ug/l	8240	4/28/99 4:52	RAM
chloroform	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,2-dichloroethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,1,1-Trichloroethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
carbon tetrachloride	<10	10	ug/l	8240	4/28/99 4:52	RAM
bromodichloromethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,2-dichloropropane	<10	10	ug/l	8240	4/28/99 4:52	RAM
cis-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 4:52	RAM
trichloroethylene	<10	10	ug/l	8240	4/28/99 4:52	RAM
trans-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,1,2-Trichloroethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
Dibromochloromethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
Bromoform	<10	10	ug/l	8240	4/28/99 4:52	RAM
Tetrachloroethylene	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,1,2,2-Tetrachloroethane	<10	10	ug/l	8240	4/28/99 4:52	RAM
Chlorobenzene	2260	10	ug/l	8240	4/28/99 4:52	RAM
2-chloroethyl vinyl ether	<20	20	ug/l	8240	4/28/99 4:52	RAM
dichlorobenzenes	<10	10	ug/l	8240	4/28/99 4:52	RAM
benzene	58	10	ug/l	8240	4/28/99 4:52	RAM
toluene	420	10	ug/l	8240	4/28/99 4:52	RAM
ethylbenzene	<10	10	ug/l	8240	4/28/99 4:52	RAM
xylenes	33	10	ug/l	8240	4/28/99 4:52	RAM
acetone	<100	100	ug/l	8240	4/28/99 4:52	RAM
carbon disulfide	<50	50	ug/l	8240	4/28/99 4:52	RAM
2-butanone	<100	100	ug/l	8240	4/28/99 4:52	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 001

MW-02S GRAB 4/15/99 @0930

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<500	500	ug/l	8240	4/28/99 4:52	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99 4:52	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99 4:52	RAM
Styrene	<10	10	ug/l	8240	4/28/99 4:52	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,2-Dichlorobenzene	140	10	ug/l	8240	4/28/99 4:52	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 4:52	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 4:52	RAM
Surrogates		RANGE		8240	4/28/99 4:52	RAM
Dibromofluoromethane	115		86-118%	8240	4/28/99 4:52	RAM
4-Bromofluorobenzene	94		86-115%	8240	4/28/99 4:52	RAM
Toluene-D8	107		88-110%	8240	4/28/99 4:52	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 002

SAMPLE DESCRIPTION: SW-120 GRAB 4/15/99 @1015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.9		SU	EPA 150.1	4/15/99 10:15	PAP
SPECIFIC CONDUCTANCE	300	1	uMHOS/CM	EPA 120.1	4/15/99 10:15	PAP
TEMPERATURE (field)	52.0		F	EPA 170.1	4/15/99 10:15	PAP
Dissolved Oxygen	2.5	1.0	mg/l	EPA 360.1	4/15/99 10:15	PAP
Volatile Organic Compounds						
chloromethane	< 100	100	ug/l	8240	4/28/99 5:55	RAM
bromomethane	< 100	100	ug/l	8240	4/28/99 5:55	RAM
vinyl chloride	< 10	10	ug/l	8240	4/28/99 5:55	RAM
dichlorodifluoromethane	< 100	100	ug/l	8240	4/28/99 5:55	RAM
chloroethane	< 100	100	ug/l	8240	4/28/99 5:55	RAM
methylene chloride	< 10	10	ug/l	8240	4/28/99 5:55	RAM
trichlorofluoromethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,1-dichloroethylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,1-dichloroethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
trans-1,2-dichloroethylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
chloroform	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,2-dichloroethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,1,1-Trichloroethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
carbon tetrachloride	< 10	10	ug/l	8240	4/28/99 5:55	RAM
bromodichloromethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,2-dichloropropane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
cis-1,3-dichloropropylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
trichloroethylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
trans-1,3-dichloropropylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,1,2-Trichloroethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
Dibromochloromethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
Bromoform	< 10	10	ug/l	8240	4/28/99 5:55	RAM
Tetrachloroethylene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
1,1,2,2-Tetrachloroethane	< 10	10	ug/l	8240	4/28/99 5:55	RAM
Chlorobenzene	92	10	ug/l	8240	4/28/99 5:55	RAM
2-chloroethyl vinyl ether	< 20	20	ug/l	8240	4/28/99 5:55	RAM
dichlorobenzenes	< 10	10	ug/l	8240	4/28/99 5:55	RAM
benzene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
toluene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
ethylbenzene	< 10	10	ug/l	8240	4/28/99 5:55	RAM
xylenes	< 10	10	ug/l	8240	4/28/99 5:55	RAM
acetone	< 100	100	ug/l	8240	4/28/99 5:55	RAM
carbon disulfide	< 50	50	ug/l	8240	4/28/99 5:55	RAM
2-butanone	< 100	100	ug/l	8240	4/28/99 5:55	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 002

SW-120 GRAB 4/15/99 @1015

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<500	500	ug/l	8240	4/28/99 5:55	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99 5:55	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99 5:55	RAM
Styrene	<10	10	ug/l	8240	4/28/99 5:55	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99 5:55	RAM
1,2-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 5:55	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 5:55	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 5:55	RAM
Surrogates		RANGE		8240	4/28/99 5:55	RAM
Dibromofluoromethane	113		86-118%	8240	4/28/99 5:55	RAM
4-Bromofluorobenzene	100		86-115%	8240	4/28/99 5:55	RAM
Toluene-D8	109		88-110%	8240	4/28/99 5:55	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 003

SAMPLE DESCRIPTION: P-35S GRAB 4/15/99 @1040

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.4		SU	EPA 150.1	4/15/99 10:40	PAP
SPECIFIC CONDUCTANCE	436	1	µMHOS/CM	EPA 120.1	4/15/99 10:40	PAP
TEMPERATURE (field)	50.0		F	EPA 170.1	4/15/99 10:40	PAP
Dissolved Oxygen	<1.0	1.0	mg/l	EPA 360.1	4/15/99 10:40	PAP
Volatile Organic Compounds						
chloromethane	<100	100	ug/l	8240	4/28/99 7:01	RAM
bromomethane	<100	100	ug/l	8240	4/28/99 7:01	RAM
vinyl chloride	<10	10	ug/l	8240	4/28/99 7:01	RAM
dichlorodifluoromethane	<100	100	ug/l	8240	4/28/99 7:01	RAM
chloroethane	<100	100	ug/l	8240	4/28/99 7:01	RAM
methylene chloride	<10	10	ug/l	8240	4/28/99 7:01	RAM
trichlorofluoromethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,1-dichloroethylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,1-dichloroethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
trans-1,2-dichloroethylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
chloroform	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,2-dichloroethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,1,1-Trichloroethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
carbon tetrachloride	<10	10	ug/l	8240	4/28/99 7:01	RAM
bromodichloromethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,2-dichloropropane	<10	10	ug/l	8240	4/28/99 7:01	RAM
cis-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
trichloroethylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
trans-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,1,2-Trichloroethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
Dibromochloromethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
Bromoform	<10	10	ug/l	8240	4/28/99 7:01	RAM
Tetrachloroethylene	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,1,2,2-Tetrachloroethane	<10	10	ug/l	8240	4/28/99 7:01	RAM
Chlorobenzene	480	10	ug/l	8240	4/28/99 7:01	RAM
2-chloroethyl vinyl ether	<20	20	ug/l	8240	4/28/99 7:01	RAM
dichlorobenzenes	<10	10	ug/l	8240	4/28/99 7:01	RAM
benzene	<10	10	ug/l	8240	4/28/99 7:01	RAM
toluene	<10	10	ug/l	8240	4/28/99 7:01	RAM
ethylbenzene	<10	10	ug/l	8240	4/28/99 7:01	RAM
xylenes	<10	10	ug/l	8240	4/28/99 7:01	RAM
acetone	<100	100	ug/l	8240	4/28/99 7:01	RAM
carbon disulfide	<50	50	ug/l	8240	4/28/99 7:01	RAM
2-butanone	<100	100	ug/l	8240	4/28/99 7:01	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 003

P-35S GRAB 4/15/99 @1040

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<500	500	ug/l	8240	4/28/99 7:01	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99 7:01	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99 7:01	RAM
Styrene	<10	10	ug/l	8240	4/28/99 7:01	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,2-Dichlorobenzene	20	10	ug/l	8240	4/28/99 7:01	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 7:01	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 7:01	RAM
Surrogates		RANGE		8240	4/28/99 7:01	RAM
Dibromofluoromethane	110		86-118%	8240	4/28/99 7:01	RAM
4-Bromofluorobenzene	101		86-115%	8240	4/28/99 7:01	RAM
Toluene-D8	103		88-110%	8240	4/28/99 7:01	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 004

SAMPLE DESCRIPTION: P-36S GRAB 4/15/99 @1105

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.7		SU	EPA 150.1	4/15/99 11:05	PAP
SPECIFIC CONDUCTANCE	485	1	uMHOS/CM	EPA 120.1	4/15/99 11:05	PAP
TEMPERATURE (field)	49.0		F	EPA 170.1	4/15/99 11:05	PAP
Dissolved Oxygen	<1.0	1.0	mg/l	EPA 360.1	4/15/99 11:05	PAP
Volatile Organic Compounds						
chloromethane	<100	100	ug/l	8240	4/28/99 7:49	RAM
bromomethane	<100	100	ug/l	8240	4/28/99 7:49	RAM
vinyl chloride	<10	10	ug/l	8240	4/28/99 7:49	RAM
dichlorodifluoromethane	<100	100	ug/l	8240	4/28/99 7:49	RAM
chloroethane	<100	100	ug/l	8240	4/28/99 7:49	RAM
methylene chloride	<10	10	ug/l	8240	4/28/99 7:49	RAM
trichlorofluoromethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,1-dichloroethylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,1-dichloroethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
trans-1,2-dichloroethylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
chloroform	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,2-dichloroethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,1,1-Trichloroethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
carbon tetrachloride	<10	10	ug/l	8240	4/28/99 7:49	RAM
bromodichloromethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,2-dichloropropane	<10	10	ug/l	8240	4/28/99 7:49	RAM
cis-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
trichloroethylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
trans-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,1,2-Trichloroethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
Dibromochloromethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
Bromoform	<10	10	ug/l	8240	4/28/99 7:49	RAM
Tetrachloroethylene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,1,2,2-Tetrachloroethane	<10	10	ug/l	8240	4/28/99 7:49	RAM
Chlorobenzene	200	10	ug/l	8240	4/28/99 7:49	RAM
2-chloroethyl vinyl ether	<20	20	ug/l	8240	4/28/99 7:49	RAM
dichlorobenzenes	<10	10	ug/l	8240	4/28/99 7:49	RAM
benzene	<10	10	ug/l	8240	4/28/99 7:49	RAM
toluene	<10	10	ug/l	8240	4/28/99 7:49	RAM
ethylbenzene	<10	10	ug/l	8240	4/28/99 7:49	RAM
xylenes	<10	10	ug/l	8240	4/28/99 7:49	RAM
acetone	<100	100	ug/l	8240	4/28/99 7:49	RAM
carbon disulfide	<50	50	ug/l	8240	4/28/99 7:49	RAM
2-butanone	<100	100	ug/l	8240	4/28/99 7:49	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 004

P-36S GRAB 4/15/99 @1105

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<500	500	ug/l	8240	4/28/99 7:49	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99 7:49	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99 7:49	RAM
Styrene	<10	10	ug/l	8240	4/28/99 7:49	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,2-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 7:49	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 7:49	RAM
Surrogates		RANGE		8240	4/28/99 7:49	RAM
Dibromofluoromethane	114		86-118%	8240	4/28/99 7:49	RAM
4-Bromofluorobenzene	95		86-115%	8240	4/28/99 7:49	RAM
Toluene-D8	101		88-110%	8240	4/28/99 7:49	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

Increased detection limit due to sample matrix.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 005

SAMPLE DESCRIPTION: SW-130 GRAB 4/15/99 @1210

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.0		4	EPA 150.1	4/15/99 12:10	PAP
SPECIFIC CONDUCTANCE	328	1	uMHOS/CM	EPA 120.1	4/15/99 12:10	PAP
TEMPERATURE (field)	58.0		F	EPA 170.1	4/15/99 12:10	PAP
Dissolved Oxygen	4.3	1.0	mg/l	EPA 360.1	4/15/99 12:10	PAP
Volatile Organic Compounds						
chloromethane	<10	10	ug/l	8240	4/28/99 8:28	RAM
bromomethane	<10	10	ug/l	8240	4/28/99 8:28	RAM
vinyl chloride	<1	1	ug/l	8240	4/28/99 8:28	RAM
dichlorodifluoromethane	<10	10	ug/l	8240	4/28/99 8:28	RAM
chloroethane	<10	10	ug/l	8240	4/28/99 8:28	RAM
methylene chloride	<1	1	ug/l	8240	4/28/99 8:28	RAM
trichlorofluoromethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,1-dichloroethylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,1-dichloroethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
trans-1,2-dichloroethylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
chloroform	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,2-dichloroethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,1,1-Trichloroethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
carbon tetrachloride	<1	1	ug/l	8240	4/28/99 8:28	RAM
bromodichloromethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,2-dichloropropane	<1	1	ug/l	8240	4/28/99 8:28	RAM
cis-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
trichloroethylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
trans-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,1,2-Trichloroethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
Dibromochloromethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
Bromoform	<1	1	ug/l	8240	4/28/99 8:28	RAM
Tetrachloroethylene	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	8240	4/28/99 8:28	RAM
Chlorobenzene	5	1	ug/l	8240	4/28/99 8:28	RAM
2-chloroethyl vinyl ether	<2	2	ug/l	8240	4/28/99 8:28	RAM
dichlorobenzenes	<1	1	ug/l	8240	4/28/99 8:28	RAM
benzene	<1	1	ug/l	8240	4/28/99 8:28	RAM
toluene	<1	1	ug/l	8240	4/28/99 8:28	RAM
ethylbenzene	<1	1	ug/l	8240	4/28/99 8:28	RAM
xylenes	<1	1	ug/l	8240	4/28/99 8:28	RAM
acetone	<10	10	ug/l	8240	4/28/99 8:28	RAM
carbon disulfide	<5	5	ug/l	8240	4/28/99 8:28	RAM
2-butanone	<10	10	ug/l	8240	4/28/99 8:28	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 005

SW-130 GRAB 4/15/99 @1210

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<50	50	ug/l	8240	4/28/99 8:28	RAM
4-methyl-2-pentanone	<50	50	ug/l	8240	4/28/99 8:28	RAM
2-hexanone	<50	50	ug/l	8240	4/28/99 8:28	RAM
Styrene	<1	1	ug/l	8240	4/28/99 8:28	RAM
O-chlorotoluene	5	1	ug/l	8240	4/28/99 8:28	RAM
1,2-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,3-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 8:28	RAM
1,4-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 8:28	RAM
Surrogates			RANGE	8240	4/28/99 8:28	RAM
Dibromofluoromethane	109		86-118%	8240	4/28/99 8:28	RAM
Bromofluorobenzene	100		86-115%	8240	4/28/99 8:28	RAM
Toluene-D8	88		88-110%	8240	4/28/99 8:28	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 006

SAMPLE DESCRIPTION: MW-01S GRAB 4/15/99 @1225

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.6		SU	EPA 150.1	4/15/99 12:25	PAP
SPECIFIC CONDUCTANCE	446	1	uMHOS/CM	EPA 120.1	4/15/99 12:25	PAP
TEMPERATURE (field)	54.0		F	EPA 170.1	4/15/99 12:25	PAP
Dissolved Oxygen	<1.0	1.0	mg/l	EPA 360.1	4/15/99 12:25	PAP
Volatile Organic Compounds						
chloromethane	<500	500	ug/l	8240	4/28/99 9:07	RAM
bromomethane	<500	500	ug/l	8240	4/28/99 9:07	RAM
vinyl chloride	<50	50	ug/l	8240	4/28/99 9:07	RAM
dichlorodifluoromethane	<500	500	ug/l	8240	4/28/99 9:07	RAM
chloroethane	<500	500	ug/l	8240	4/28/99 9:07	RAM
methylene chloride	<50	50	ug/l	8240	4/28/99 9:07	RAM
trichlorofluoromethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,1-dichloroethylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,1-dichloroethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
trans-1,2-dichloroethylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
chloroform	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,2-dichloroethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,1,1-Trichloroethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
carbon tetrachloride	<50	50	ug/l	8240	4/28/99 9:07	RAM
bromodichloromethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,2-dichloropropane	<50	50	ug/l	8240	4/28/99 9:07	RAM
cis-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
trichloroethylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
trans-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,1,2-Trichloroethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
Dibromochloromethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
Bromoform	<50	50	ug/l	8240	4/28/99 9:07	RAM
Tetrachloroethylene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,1,2,2-Tetrachloroethane	<50	50	ug/l	8240	4/28/99 9:07	RAM
Chlorobenzene	1100	50	ug/l	8240	4/28/99 9:07	RAM
2-chloroethyl vinyl ether	<100	100	ug/l	8240	4/28/99 9:07	RAM
dichlorobenzenes	<50	50	ug/l	8240	4/28/99 9:07	RAM
benzene	<50	50	ug/l	8240	4/28/99 9:07	RAM
toluene	<50	50	ug/l	8240	4/28/99 9:07	RAM
ethylbenzene	<50	50	ug/l	8240	4/28/99 9:07	RAM
xylenes	<50	50	ug/l	8240	4/28/99 9:07	RAM
acetone	<500	500	ug/l	8240	4/28/99 9:07	RAM
carbon disulfide	<300	300	ug/l	8240	4/28/99 9:07	RAM
2-butanone	<500	500	ug/l	8240	4/28/99 9:07	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 006

MW-01S GRAB 4/15/99 @1225

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<2500	2500	ug/l	8240	4/28/99 9:07	RAM
4-methyl-2-pentanone	<2500	2500	ug/l	8240	4/28/99 9:07	RAM
2-hexanone	<2500	2500	ug/l	8240	4/28/99 9:07	RAM
Styrene	<50	50	ug/l	8240	4/28/99 9:07	RAM
O-chlorotoluene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,2-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,3-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 9:07	RAM
1,4-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 9:07	RAM
Surrogates		RANGE		8240	4/28/99 9:07	RAM
Dibromofluoromethane	115		86-118%	8240	4/28/99 9:07	RAM
4-Bromofluorobenzene	94		86-115%	8240	4/28/99 9:07	RAM
Toluene-D8	94		88-110%	8240	4/28/99 9:07	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 007

SAMPLE DESCRIPTION: SW-110 GRAB 4/15/99 @1345

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	7.0		SU	EPA 150.1	4/15/99 13:45	PAP
SPECIFIC CONDUCTANCE	309	1	uMHOS/CM	EPA 120.1	4/15/99 13:45	PAP
TEMPERATURE (field)	53.0		F	EPA 170.1	4/15/99 13:45	PAP
Dissolved Oxygen	2.7	1.0	mg/l	EPA 360.1	4/15/99 13:45	PAP
Volatile Organic Compounds						
chloromethane	<500	500	ug/l	8240	4/28/99 12:57	RAM
bromomethane	<500	500	ug/l	8240	4/28/99 12:57	RAM
vinyl chloride	<50	50	ug/l	8240	4/28/99 12:57	RAM
dichlorodifluoromethane	<500	500	ug/l	8240	4/28/99 12:57	RAM
chloroethane	<500	500	ug/l	8240	4/28/99 12:57	RAM
methylene chloride	<50	50	ug/l	8240	4/28/99 12:57	RAM
trichlorofluoromethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,1-dichloroethylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,1-dichloroethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
trans-1,2-dichloroethylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
chloroform	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,2-dichloroethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,1,1-Trichloroethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
carbon tetrachloride	<50	50	ug/l	8240	4/28/99 12:57	RAM
bromodichloromethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,2-dichloropropane	<50	50	ug/l	8240	4/28/99 12:57	RAM
cis-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
trichloroethylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
trans-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,1,2-Trichloroethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
Dibromochloromethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
Bromoform	<50	50	ug/l	8240	4/28/99 12:57	RAM
Tetrachloroethylene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,1,2,2-Tetrachloroethane	<50	50	ug/l	8240	4/28/99 12:57	RAM
Chlorobenzene	670	50	ug/l	8240	4/28/99 12:57	RAM
2-chloroethyl vinyl ether	<100	100	ug/l	8240	4/28/99 12:57	RAM
dichlorobenzenes	<50	50	ug/l	8240	4/28/99 12:57	RAM
benzene	<50	50	ug/l	8240	4/28/99 12:57	RAM
toluene	<50	50	ug/l	8240	4/28/99 12:57	RAM
ethylbenzene	<50	50	ug/l	8240	4/28/99 12:57	RAM
xylenes	<50	50	ug/l	8240	4/28/99 12:57	RAM
acetone	<500	500	ug/l	8240	4/28/99 12:57	RAM
carbon disulfide	<300	300	ug/l	8240	4/28/99 12:57	RAM
2-butanone	<500	500	ug/l	8240	4/28/99 12:57	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 007

SW-110 GRAB 4/15/99 @1345

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<2500	2500	ug/l	8240	4/28/99 12:57	RAM
4-methyl-2-pentanone	<2500	2500	ug/l	8240	4/28/99 12:57	RAM
2-hexanone	<2500	2500	ug/l	8240	4/28/99 12:57	RAM
Styrene	<50	50	ug/l	8240	4/28/99 12:57	RAM
O-chlorotoluene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,2-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,3-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 12:57	RAM
1,4-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 12:57	RAM
Surrogates		RANGE		8240	4/28/99 12:57	RAM
Dibromofluoromethane	114		86-118%	8240	4/28/99 12:57	RAM
4-Bromofluorobenzene	92		86-115%	8240	4/28/99 12:57	RAM
Toluene-D8	110		88-110%	8240	4/28/99 12:57	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 008

SAMPLE DESCRIPTION: P-37S GRAB 4/15/99 @1405

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.9		SU	EPA 150.1	4/15/99 14:05	PAP
SPECIFIC CONDUCTANCE	639	1	uMHOS/CM	EPA 120.1	4/15/99 14:05	PAP
TEMPERATURE (field)	52.0		F	EPA 170.1	4/15/99 14:05	PAP
Dissolved Oxygen	2.0	1.0	mg/l	EPA 360.1	4/15/99 14:05	PAP
Volatile Organic Compounds						
chloromethane	<100	100	ug/l	8240	4/28/99 13:37	RAM
bromomethane	<100	100	ug/l	8240	4/28/99 13:37	RAM
vinyl chloride	<10	10	ug/l	8240	4/28/99 13:37	RAM
dichlorodifluoromethane	<100	100	ug/l	8240	4/28/99 13:37	RAM
chloroethane	<100	100	ug/l	8240	4/28/99 13:37	RAM
methylene chloride	<10	10	ug/l	8240	4/28/99 13:37	RAM
trichlorofluoromethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,1-dichloroethylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,1-dichloroethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
trans-1,2-dichloroethylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
chloroform	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,2-dichloroethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,1,1-Trichloroethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
carbon tetrachloride	<10	10	ug/l	8240	4/28/99 13:37	RAM
bromodichloromethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,2-dichloropropane	<10	10	ug/l	8240	4/28/99 13:37	RAM
cis-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
trichloroethylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
trans-1,3-dichloropropylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,1,2-Trichloroethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
Dibromochloromethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
Bromoform	<10	10	ug/l	8240	4/28/99 13:37	RAM
Tetrachloroethylene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,1,2,2-Tetrachloroethane	<10	10	ug/l	8240	4/28/99 13:37	RAM
Chlorobenzene	210	10	ug/l	8240	4/28/99 13:37	RAM
2-chloroethyl vinyl ether	<20	20	ug/l	8240	4/28/99 13:37	RAM
dichlorobenzenes	<10	10	ug/l	8240	4/28/99 13:37	RAM
benzene	<10	10	ug/l	8240	4/28/99 13:37	RAM
toluene	<10	10	ug/l	8240	4/28/99 13:37	RAM
ethylbenzene	<10	10	ug/l	8240	4/28/99 13:37	RAM
xylenes	<10	10	ug/l	8240	4/28/99 13:37	RAM
acetone	<100	100	ug/l	8240	4/28/99 13:37	RAM
carbon disulfide	<50	50	ug/l	8240	4/28/99 13:37	RAM
2-butanone	<100	100	ug/l	8240	4/28/99 13:37	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 008

P-37S GRAB 4/15/99 @1405

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<500	500	ug/l	8240	4/28/99 13:37	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99 13:37	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99 13:37	RAM
Styrene	<10	10	ug/l	8240	4/28/99 13:37	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,2-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 13:37	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99 13:37	RAM
Surrogates		RANGE		8240	4/28/99 13:37	RAM
Dibromofluoromethane	112		86-118%	8240	4/28/99 13:37	RAM
4-Bromofluorobenzene	110		86-115%	8240	4/28/99 13:37	RAM
Toluene-D8	97		88-110%	8240	4/28/99 13:37	RAM

Increased detection limit due to sample matrix.

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 009

SAMPLE DESCRIPTION: P-38S GRAB 4/15/99 @1440

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.7		SU	EPA 150.1	4/15/99 14:40	PAP
SPECIFIC CONDUCTANCE	360	1	µMHOS/CM	EPA 120.1	4/15/99 14:40	PAP
TEMPERATURE (field)	58.0		F	EPA 170.1	4/15/99 14:40	PAP
Dissolved Oxygen	1.9	1.0	mg/l	EPA 360.1	4/15/99 14:40	PAP
Volatile Organic Compounds						
chloromethane	<10	10	ug/l	8240	4/28/99 14:18	RAM
bromomethane	<10	10	ug/l	8240	4/28/99 14:18	RAM
vinyl chloride	<1	1	ug/l	8240	4/28/99 14:18	RAM
dichlorodifluoromethane	<10	10	ug/l	8240	4/28/99 14:18	RAM
chloroethane	<10	10	ug/l	8240	4/28/99 14:18	RAM
ethylene chloride	<1	1	ug/l	8240	4/28/99 14:18	RAM
trichlorofluoromethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,1-dichloroethylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,1-dichloroethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
trans-1,2-dichloroethylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
chloroform	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,2-dichloroethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,1,1-Trichloroethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
carbon tetrachloride	<1	1	ug/l	8240	4/28/99 14:18	RAM
bromodichloromethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,2-dichloropropane	<1	1	ug/l	8240	4/28/99 14:18	RAM
cis-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
trichloroethylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
trans-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,1,2-Trichloroethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
Dibromochloromethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
Bromoform	<1	1	ug/l	8240	4/28/99 14:18	RAM
Tetrachloroethylene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	8240	4/28/99 14:18	RAM
Chlorobenzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
2-chloroethyl vinyl ether	<2	2	ug/l	8240	4/28/99 14:18	RAM
dichlorobenzenes	<1	1	ug/l	8240	4/28/99 14:18	RAM
benzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
toluene	<1	1	ug/l	8240	4/28/99 14:18	RAM
phenylbenzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
benzenes	<1	1	ug/l	8240	4/28/99 14:18	RAM
acetone	<10	10	ug/l	8240	4/28/99 14:18	RAM
carbon disulfide	<5	5	ug/l	8240	4/28/99 14:18	RAM
2-butanone	<10	10	ug/l	8240	4/28/99 14:18	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 4/16/99
 Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 009

P-38S GRAB 4/15/99 @1440

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<50	50	ug/l	8240	4/28/99 14:18	RAM
4-methyl-2-pentanone	<50	50	ug/l	8240	4/28/99 14:18	RAM
2-hexanone	<50	50	ug/l	8240	4/28/99 14:18	RAM
Styrene	<1	1	ug/l	8240	4/28/99 14:18	RAM
O-chlorotoluene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,2-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,3-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
1,4-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 14:18	RAM
Surrogates			RANGE	8240	4/28/99 14:18	RAM
Dibromofluoromethane	105		86-118%	8240	4/28/99 14:18	RAM
4-Bromofluorobenzene	113		86-115%	8240	4/28/99 14:18	RAM
Toluene-D8	94		88-110%	8240	4/28/99 14:18	RAM

Volatile organic analyses performed under the operating guidelines
 method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 010

SAMPLE DESCRIPTION: MW-21S GRAB 4/15/99 @1510

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.6		SU	EPA 150.1	4/15/99 15:10	PAP
SPECIFIC CONDUCTANCE	329	1	µMHOS/CM	EPA 120.1	4/15/99 15:10	PAP
TEMPERATURE (field)	52.0		F	EPA 170.1	4/15/99 15:10	PAP
Dissolved Oxygen	1.3	1.0	mg/l	EPA 360.1	4/15/99 15:10	PAP
Volatile Organic Compounds						
chloromethane	< 500	500	ug/l	8240	4/28/99 14:58	RAM
bromomethane	< 500	500	ug/l	8240	4/28/99 14:58	RAM
vinyl chloride	< 50	50	ug/l	8240	4/28/99 14:58	RAM
dichlorodifluoromethane	< 500	500	ug/l	8240	4/28/99 14:58	RAM
chloroethane	< 500	500	ug/l	8240	4/28/99 14:58	RAM
methylene chloride	< 50	50	ug/l	8240	4/28/99 14:58	RAM
trichlorofluoromethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,1-dichloroethylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,1-dichloroethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
trans-1,2-dichloroethylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
chloroform	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,2-dichloroethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,1,1-Trichloroethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
carbon tetrachloride	< 50	50	ug/l	8240	4/28/99 14:58	RAM
bromodichloromethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,2-dichloropropane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
cis-1,3-dichloropropylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
trichloroethylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
trans-1,3-dichloropropylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,1,2-Trichloroethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
Dibromochloromethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
Bromoform	< 50	50	ug/l	8240	4/28/99 14:58	RAM
Tetrachloroethylene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
1,1,2,2-Tetrachloroethane	< 50	50	ug/l	8240	4/28/99 14:58	RAM
Chlorobenzene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
2-chloroethyl vinyl ether	< 100	100	ug/l	8240	4/28/99 14:58	RAM
dichlorobenzenes	< 50	50	ug/l	8240	4/28/99 14:58	RAM
benzene	< 50	50	ug/l	8240	4/28/99 14:58	RAM
toluene	13000	50	ug/l	8240	4/28/99 14:58	RAM
ethylbenzene	130	50	ug/l	8240	4/28/99 14:58	RAM
xylenes	520	50	ug/l	8240	4/28/99 14:58	RAM
acetone	< 500	500	ug/l	8240	4/28/99 14:58	RAM
carbon disulfide	< 300	300	ug/l	8240	4/28/99 14:58	RAM
2-butanone	< 500	500	ug/l	8240	4/28/99 14:58	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 010

MW-21S GRAB 4/15/99 @1510

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
vinyl acetate	<2500	2500	ug/l	8240	4/28/99 14:58	RAM
4-methyl-2-pentanone	<2500	2500	ug/l	8240	4/28/99 14:58	RAM
2-hexanone	<2500	2500	ug/l	8240	4/28/99 14:58	RAM
Styrene	<50	50	ug/l	8240	4/28/99 14:58	RAM
O-chlorotoluene	9000	50	ug/l	8240	4/28/99 14:58	RAM
1,2-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 14:58	RAM
1,3-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 14:58	RAM
1,4-Dichlorobenzene	<50	50	ug/l	8240	4/28/99 14:58	RAM
Surrogates		RANGE		8240	4/28/99 14:58	RAM
Dibromofluoromethane	115		86-118%	8240	4/28/99 14:58	RAM
Bromofluorobenzene	96		86-115%	8240	4/28/99 14:58	RAM
Toluene-D8	93		88-110%	8240	4/28/99 14:58	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

Increased detection limit due to sample matrix.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 013

SAMPLE DESCRIPTION: TRIP BLANK GRAB 4/15/99 @1315

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
Volatile Organic Compounds						
chloromethane	<10	10	ug/l	8240	4/28/99 17:51	RAM
bromomethane	<10	10	ug/l	8240	4/28/99 17:51	RAM
vinyl chloride	<1	1	ug/l	8240	4/28/99 17:51	RAM
dichlorodifluoromethane	<10	10	ug/l	8240	4/28/99 17:51	RAM
chloroethane	<10	10	ug/l	8240	4/28/99 17:51	RAM
methylene chloride	<1	1	ug/l	8240	4/28/99 17:51	RAM
trichlorofluoromethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,1-dichloroethylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,1-dichloroethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
trans-1,2-dichloroethylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
chloroform	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,2-dichloroethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,1,1-Trichloroethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
carbon tetrachloride	<1	1	ug/l	8240	4/28/99 17:51	RAM
bromodichloromethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,2-dichloropropane	<1	1	ug/l	8240	4/28/99 17:51	RAM
cis-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
trichloroethylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
trans-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,1,2-Trichloroethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
Dibromochloromethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
Bromoform	<1	1	ug/l	8240	4/28/99 17:51	RAM
Tetrachloroethylene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	8240	4/28/99 17:51	RAM
Chlorobenzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
2-chloroethyl vinyl ether	<2	2	ug/l	8240	4/28/99 17:51	RAM
dichlorobenzenes	<1	1	ug/l	8240	4/28/99 17:51	RAM
benzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
toluene	<1	1	ug/l	8240	4/28/99 17:51	RAM
ethylbenzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
xylenes	<1	1	ug/l	8240	4/28/99 17:51	RAM
acetone	<10	10	ug/l	8240	4/28/99 17:51	RAM
carbon disulfide	<5	5	ug/l	8240	4/28/99 17:51	RAM
2-butanone	<10	10	ug/l	8240	4/28/99 17:51	RAM
vinyl acetate	<50	50	ug/l	8240	4/28/99 17:51	RAM
4-methyl-2-pentanone	<50	50	ug/l	8240	4/28/99 17:51	RAM
2-hexanone	<50	50	ug/l	8240	4/28/99 17:51	RAM
Styrene	<1	1	ug/l	8240	4/28/99 17:51	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 013

TRIP BLANK GRAB 4/15/99 @1315

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
O-chlorotoluene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,2-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,3-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
1,4-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 17:51	RAM
Surrogates			RANGE	8240	4/28/99 17:51	RAM
Dibromofluoromethane	110		86-118%	8240	4/28/99 17:51	RAM
4-Bromofluorobenzene	105		86-115%	8240	4/28/99 17:51	RAM
Toluene-D8	88		88-110%	8240	4/28/99 17:51	RAM

Volatile organic analyses performed under the operating guidelines

Method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 014

SAMPLE DESCRIPTION: FIELD BLANK GRAB 4/15/99 @0915

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
Volatile Organic Compounds						
chloromethane	<10	10	ug/l	8240	4/28/99 20:28	RAM
bromomethane	<10	10	ug/l	8240	4/28/99 20:28	RAM
vinyl chloride	<1	1	ug/l	8240	4/28/99 20:28	RAM
dichlorodifluoromethane	<10	10	ug/l	8240	4/28/99 20:28	RAM
chloroethane	<10	10	ug/l	8240	4/28/99 20:28	RAM
methylene chloride	<1	1	ug/l	8240	4/28/99 20:28	RAM
trichlorofluoromethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,1-dichloroethylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
,1-dichloroethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
trans-1,2-dichloroethylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
chloroform	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,2-dichloroethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,1,1-Trichloroethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
carbon tetrachloride	<1	1	ug/l	8240	4/28/99 20:28	RAM
bromodichloromethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,2-dichloropropane	<1	1	ug/l	8240	4/28/99 20:28	RAM
cis-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
trichloroethylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
trans-1,3-dichloropropylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,1,2-Trichloroethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
Dibromochloromethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
Bromoform	<1	1	ug/l	8240	4/28/99 20:28	RAM
Tetrachloroethylene	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	8240	4/28/99 20:28	RAM
Chlorobenzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
2-chloroethyl vinyl ether	<2	2	ug/l	8240	4/28/99 20:28	RAM
dichlorobenzenes	<1	1	ug/l	8240	4/28/99 20:28	RAM
benzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
toluene	<1	1	ug/l	8240	4/28/99 20:28	RAM
ethylbenzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
xylenes	<1	1	ug/l	8240	4/28/99 20:28	RAM
acetone	<10	10	ug/l	8240	4/28/99 20:28	RAM
carbon disulfide	<5	5	ug/l	8240	4/28/99 20:28	RAM
2-butanone	<10	10	ug/l	8240	4/28/99 20:28	RAM
vinyl acetate	<50	50	ug/l	8240	4/28/99 20:28	RAM
4-methyl-2-pentanone	<50	50	ug/l	8240	4/28/99 20:28	RAM
2-hexanone	<50	50	ug/l	8240	4/28/99 20:28	RAM
Styrene	<1	1	ug/l	8240	4/28/99 20:28	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 014

FIELD BLANK GRAB 4/15/99 @0915

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
O-chlorotoluene	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,2-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,3-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
1,4-Dichlorobenzene	<1	1	ug/l	8240	4/28/99 20:28	RAM
Surrogates			RANGE	8240	4/28/99 20:28	RAM
Dibromofluoromethane	108		86-118%	8240	4/28/99 20:28	RAM
4-Bromofluorobenzene	91		86-115%	8240	4/28/99 20:28	RAM
Toluene-D8	101		88-110%	8240	4/28/99 20:28	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

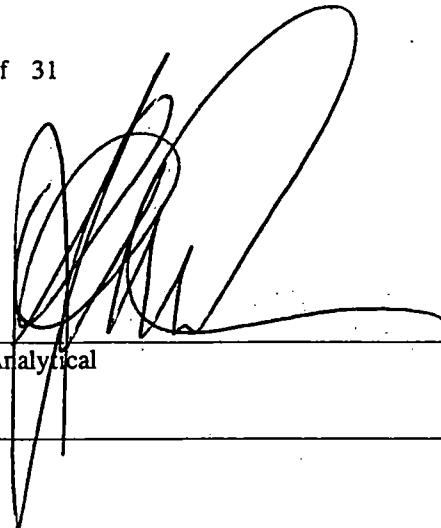
Sample #: 015

SAMPLE DESCRIPTION: MW-12S GRAB 4/16/99 @0915

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.9		SU	EPA 150.1	4/16/99 9:15	PAP
SPECIFIC CONDUCTANCE	361	1	uMHOS/CM	EPA 120.1	4/16/99 9:15	PAP
TEMPERATURE (field)	51.0		F	EPA 170.1	4/16/99 9:15	PAP
Dissolved Oxygen	1.7	1.0	mg/l	EPA 360.1	4/16/99 9:15	PAP
Volatile Organic Compounds						
chloromethane	< 100	100	ug/l	8240	4/28/99 19:10	RAM
bromomethane	< 100	100	ug/l	8240	4/28/99 19:10	RAM
vinyl chloride	< 10	10	ug/l	8240	4/28/99 19:10	RAM
dichlorodifluoromethane	< 100	100	ug/l	8240	4/28/99 19:10	RAM
propane	< 100	100	ug/l	8240	4/28/99 19:10	RAM
methylene chloride	< 10	10	ug/l	8240	4/28/99 19:10	RAM
trichlorofluoromethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,1-dichloroethylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,1-dichloroethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
trans-1,2-dichloroethylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
chloroform	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,2-dichloroethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,1,1-Trichloroethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
carbon tetrachloride	< 10	10	ug/l	8240	4/28/99 19:10	RAM
bromodichloromethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,2-dichloropropane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
cis-1,3-dichloropropylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
trichloroethylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
trans-1,3-dichloropropylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,1,2-Trichloroethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
Dibromochloromethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
Bromoform	< 10	10	ug/l	8240	4/28/99 19:10	RAM
Tetrachloroethylene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
1,1,2,2-Tetrachloroethane	< 10	10	ug/l	8240	4/28/99 19:10	RAM
Chlorobenzene	12	10	ug/l	8240	4/28/99 19:10	RAM
2-chloroethyl vinyl ether	< 20	20	ug/l	8240	4/28/99 19:10	RAM
dichlorobenzenes	< 10	10	ug/l	8240	4/28/99 19:10	RAM
benzene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
toluene	< 10	10	ug/l	8240	4/28/99 19:10	RAM
o-xylene	25	10	ug/l	8240	4/28/99 19:10	RAM
xylenes	24	10	ug/l	8240	4/28/99 19:10	RAM
acetone	< 100	100	ug/l	8240	4/28/99 19:10	RAM
carbon disulfide	< 50	50	ug/l	8240	4/28/99 19:10	RAM
2-butanone	< 100	100	ug/l	8240	4/28/99 19:10	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS



Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 015

MW-12S GRAB 4/16/99 @0915

PARAMETER	SAMPLE	DET.	UNITS	METHOD	ANALYZED		ANALYST
	RESULTS	LIMIT			DATE/TIME		
vinyl acetate	<500	500	ug/l	8240	4/28/99	19:10	RAM
4-methyl-2-pentanone	<500	500	ug/l	8240	4/28/99	19:10	RAM
2-hexanone	<500	500	ug/l	8240	4/28/99	19:10	RAM
Styrene	<10	10	ug/l	8240	4/28/99	19:10	RAM
O-chlorotoluene	<10	10	ug/l	8240	4/28/99	19:10	RAM
1,2-Dichlorobenzene	<10	10	ug/l	8240	4/28/99	19:10	RAM
1,3-Dichlorobenzene	<10	10	ug/l	8240	4/28/99	19:10	RAM
1,4-Dichlorobenzene	<10	10	ug/l	8240	4/28/99	19:10	RAM
Surrogates		RANGE	8240		4/28/99	19:10	RAM
Dibromofluoromethane	113	86-118%	8240		4/28/99	19:10	RAM
Bromofluorobenzene	109	86-115%	8240		4/28/99	19:10	RAM
Toluene-D8	93	88-110%	8240		4/28/99	19:10	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

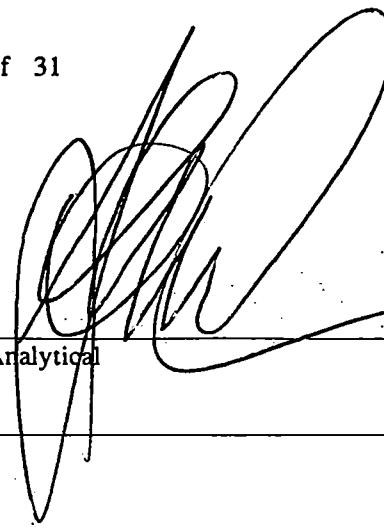
Increased detection limit due to sample matrix.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.
 Date Received: 4/16/99
 Work Order # 9904-03334

Approved by:
 R.I. Analytical



Sample #: 016

SAMPLE DESCRIPTION: MW-04S GRAB 4/16/99 @0940

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
pH (field)	6.7		SU	EPA 150.1	4/16/99 9:40	PAP
SPECIFIC CONDUCTANCE	525	1	µMHOS/CM	EPA 120.1	4/16/99 9:40	PAP
TEMPERATURE (field)	52.0		F	EPA 170.1	4/16/99 9:40	PAP
Dissolved Oxygen	4.0	1.0	mg/l	EPA 360.1	4/16/99 9:40	PAP
Volatile Organic Compounds						
chloromethane	<500	500	ug/l	8240	4/28/99 19:49	RAM
bromomethane	<500	500	ug/l	8240	4/28/99 19:49	RAM
vinyl chloride	<50	50	ug/l	8240	4/28/99 19:49	RAM
dichlorodifluoromethane	<500	500	ug/l	8240	4/28/99 19:49	RAM
chloroethane	<500	500	ug/l	8240	4/28/99 19:49	RAM
methylene chloride	<50	50	ug/l	8240	4/28/99 19:49	RAM
trichlorofluoromethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,1-dichloroethylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,1-dichloroethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
trans-1,2-dichloroethylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
chloroform	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,2-dichloroethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,1,1-Trichloroethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
carbon tetrachloride	<50	50	ug/l	8240	4/28/99 19:49	RAM
bromodichloromethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,2-dichloropropane	<50	50	ug/l	8240	4/28/99 19:49	RAM
cis-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
trichloroethylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
trans-1,3-dichloropropylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,1,2-Trichloroethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
Dibromochloromethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
Bromoform	<50	50	ug/l	8240	4/28/99 19:49	RAM
Tetrachloroethylene	<50	50	ug/l	8240	4/28/99 19:49	RAM
1,1,2,2-Tetrachloroethane	<50	50	ug/l	8240	4/28/99 19:49	RAM
Chlorobenzene	460	50	ug/l	8240	4/28/99 19:49	RAM
2-chloroethyl vinyl ether	<100	100	ug/l	8240	4/28/99 19:49	RAM
dichlorobenzenes	<50	50	ug/l	8240	4/28/99 19:49	RAM
benzene	<50	50	ug/l	8240	4/28/99 19:49	RAM
toluene	14000	50	ug/l	8240	4/28/99 19:49	RAM
ethylbenzene	180	50	ug/l	8240	4/28/99 19:49	RAM
xylenes	730	50	ug/l	8240	4/28/99 19:49	RAM
acetone	<500	500	ug/l	8240	4/28/99 19:49	RAM
carbon disulfide	<300	300	ug/l	8240	4/28/99 19:49	RAM
2-butanone	<500	500	ug/l	8240	4/28/99 19:49	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 016

MW-04S GRAB 4/16/99 @0940

PARAMETER	SAMPLE	DET.	UNITS	METHOD	ANALYZED		ANALYST
	RESULTS	LIMIT			DATE/TIME		
vinyl acetate	<2500	2500	ug/l	8240	4/28/99	19:49	RAM
4-methyl-2-pentanone	<2500	2500	ug/l	8240	4/28/99	19:49	RAM
2-hexanone	<2500	2500	ug/l	8240	4/28/99	19:49	RAM
Styrene	<50	50	ug/l	8240	4/28/99	19:49	RAM
O-chlorotoluene	2400	50	ug/l	8240	4/28/99	19:49	RAM
1,2-Dichlorobenzene	160	50	ug/l	8240	4/28/99	19:49	RAM
1,3-Dichlorobenzene	<50	50	ug/l	8240	4/28/99	19:49	RAM
1,4-Dichlorobenzene	<50	50	ug/l	8240	4/28/99	19:49	RAM
Surrogates			RANGE	8240	4/28/99	19:49	RAM
Dibromofluoromethane	107		86-118%	8240	4/28/99	19:49	RAM
Bromofluorobenzene	102		86-115%	8240	4/28/99	19:49	RAM
Ethane-D8	4		88-110%	8240	4/28/99	19:49	RAM

Volatile organic analyses performed under the operating guidelines
method 8260.

Increased detection limit due to sample matrix.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 017

SAMPLE DESCRIPTION: TRIP BLANK GRAB 4/16/99 @1610

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
Volatile Organic Compounds						
chloromethane	<10	10	ug/l	8240	4/29/99 15:01	RAM
bromomethane	<10	10	ug/l	8240	4/29/99 15:01	RAM
vinyl chloride	<1	1	ug/l	8240	4/29/99 15:01	RAM
dichlorodifluoromethane	<10	10	ug/l	8240	4/29/99 15:01	RAM
chloroethane	<10	10	ug/l	8240	4/29/99 15:01	RAM
methylene chloride	<1	1	ug/l	8240	4/29/99 15:01	RAM
trichlorofluoromethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,1-dichloroethylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,1-dichloroethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
trans-1,2-dichloroethylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
chloroform	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,2-dichloroethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,1,1-Trichloroethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
carbon tetrachloride	<1	1	ug/l	8240	4/29/99 15:01	RAM
bromodichloromethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,2-dichloropropane	<1	1	ug/l	8240	4/29/99 15:01	RAM
cis-1,3-dichloropropylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
trichloroethylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
trans-1,3-dichloropropylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,1,2-Trichloroethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
Dibromochloromethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
Bromoform	<1	1	ug/l	8240	4/29/99 15:01	RAM
Tetrachloroethylene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,1,2,2-Tetrachloroethane	<1	1	ug/l	8240	4/29/99 15:01	RAM
Chlorobenzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
2-chloroethyl vinyl ether	<2	2	ug/l	8240	4/29/99 15:01	RAM
dichlorobenzenes	<1	1	ug/l	8240	4/29/99 15:01	RAM
benzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
toluene	<1	1	ug/l	8240	4/29/99 15:01	RAM
ethylbenzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
xylenes	<1	1	ug/l	8240	4/29/99 15:01	RAM
acetone	<10	10	ug/l	8240	4/29/99 15:01	RAM
carbon disulfide	<5	5	ug/l	8240	4/29/99 15:01	RAM
butanone	<10	10	ug/l	8240	4/29/99 15:01	RAM
vinyl acetate	<50	50	ug/l	8240	4/29/99 15:01	RAM
4-methyl-2-pentanone	<50	50	ug/l	8240	4/29/99 15:01	RAM
2-hexanone	<50	50	ug/l	8240	4/29/99 15:01	RAM
Styrene	<1	1	ug/l	8240	4/29/99 15:01	RAM

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

Ciba Specialty Chemicals Corp.

Date Received: 4/16/99

Work Order # 9904-03334

Approved by:

R.I. Analytical

Sample #: 017

TRIP BLANK GRAB 4/16/99 @1610

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	ANALYZED DATE/TIME	ANALYST
O-chlorotoluene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,2-Dichlorobenzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,3-Dichlorobenzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
1,4-Dichlorobenzene	<1	1	ug/l	8240	4/29/99 15:01	RAM
Surrogates			RANGE	8240	4/29/99 15:01	RAM
Dibromofluoromethane	108		86-118%	8240	4/29/99 15:01	RAM
4-Bromofluorobenzene	106		86-115%	8240	4/29/99 15:01	RAM
Toluene-D8	98		88-110%	8240	4/29/99 15:01	RAM

Volatile organic analyses performed under the operating guidelines

Method 8260.

RI Analytical Laboratories, Inc.
QA/QC Report

Client: CIBA Specialty Chemicals Corp.
W.O. #: 9904-3334
Date: 4/28/99

- Matrix Spike -

Parameter	Units	Sample #	Sample Conc.	Spike Conc.	Det. Conc.	% Rec.	Date Analyzed
Benzene	ug/l	3334-11	< 1000	8000	8600	108	4/28/99
Chlorobenzene	ug/l	3334-11	< 1000	8000	8500	106	4/28/99
1,1-Dichloroethene	ug/l	3334-11	< 1000	8000	9300	116	4/28/99
Toluene	ug/l	3334-11	13000	8000	19000	75	4/28/99
Trichloroethylene	ug/l	3334-11	< 1000	8000	8400	105	4/28/99

Parameter	Units	Sample #	Results	Date Analyzed
Dibromofluoromethane	%	3334-11	112	4/28/99
Toluene-d8	%	3334-11	98	4/28/99
4-Bromofluorobenzene	%	3334-11	93	4/28/99
1,2-Dichloroethane-d4	%	3334-11	109	4/28/99

-Matrix Spike Duplicate -

Parameter	Units	Sample #	Sample Conc.	Spike Conc.	Det. Conc.	% Rec.	Date Analyzed
Benzene	ug/l	3334-12	< 1000	8000	8500	106	4/28/99
Chlorobenzene	ug/l	3334-12	< 1000	8000	8500	106	4/28/99
1,1-Dichloroethene	ug/l	3334-12	< 1000	8000	8700	109	4/28/99
Toluene	ug/l	3334-12	13000	8000	20000	88	4/28/99
Trichloroethylene	ug/l	3334-12	< 1000	8000	9000	113	4/28/99

Parameter	Units	Sample #	Results	Date Analyzed
Dibromofluoromethane	%	3334-12	102	4/28/99
Toluene-d8	%	3334-12	103	4/28/99
4-Bromofluorobenzene	%	3334-12	90	4/28/99
1,2-Dichloroethane-d4	%	3334-12	117	4/28/99

Analytical Laboratories, Inc.

41 Illinois Avenue
Warwick, RI 02888
Phone: (401) 737-8500
Fax: (401) 738-1970

**950 Boylston Street, Unit 102
Newton Highlands, MA 02461
Phone: (617) 965-5133
Fax: (617) 965-5624**

CHAIN OF CUSTODY RECORD

Page 2 of 2

Container Type Codes:	Preservative Codes:	Matrix Codes:
P=Plastic	AG=Amber Glass	NP=Non prescerved
G=Glass	St=Sterile	S=Sulfuric
V=Vial	I=Cooled 4°C	H=HCL
O=Other (describe)	N=Nitric	SH=NaOH
	M=Methanol	SR=NaHSO4
		O=Other (describe)
		B=Bulk/Solid

Date Collected	Time Collected	Sample ID	G=Grab C=Comp.	Containers # + (code)	Preservative (code)	Matrix (code)	Analysis Request
4-14-99	1315	TRI P BIK	G	2V	H	GW	8240*
4-15-99	0915	Field BIK	G	3V	H	GW	8240*
4-16-99	0915	MW 125	G	3V	H	GW	8240* pH, Temp, Salinity, D.O. (field)
4-16-99	0940	MW04S	G	3V	H	GW	8240* " "
4-15-99	1610	TRI P BLK	G	2V	H	GW	8240*

Client Information

Company Name: CIBA

Address

City / State / Zip:

Phone

Contact: Barry Cohen

Project Information

Project Name / Location: CIBA SITE CRANSTON

P.O. Number / Project Number

Project Manager / Report To

Sampled by: Paul CATHAR

Reference Proposal:

Relinquished by:	Date	Time	Received by:	Date	Time
	4-15-99	145		4-15-99	1500

Turn Around Time:

Normal

5 business days
Surcharges may apply

Rush (business days)

RIAL USE ONLY

PICK-UP ONLY

© RIAL Sampled

Shipped on Ice

Project Comments:

* SEE COC 1 of 3

Analytical Laboratories, Inc.

Illinois Avenue
Warwick, RI 02888
Phone: (401) 737-8500
Fax: (401) 738-1970

950 Boylston Street, Unit 102
Newton Highlands, MA 02461
Phone: (617) 965-5133
Fax: (617) 965-5624

CHAIN OF CUSTODY RECORD

Page / of 2

Container Type Codes:
P=Plastic AG=Amber Glass
G=Glass St=Sterile
V=Vial
O=Other (describe)

Preservative Codes:
NP=Non preserved S=Sulfuric
I=Cooled 4°C H=HCL
N=Nitric SH=NaOH
M=Methanol SB=NaHSO4

Matrix Codes:
GW=Groundwater S=Soil
WW=Wastewater SI=Sludge
DW=Drinking water A=Air
O=Other (describe) B=Bulk/Solid

Date Collected	Time Collected	Sample ID	G=Grab C=Comp.	Containers # + (code)	Preservative (code)	Matrix (code)	Analysis Request
4-15-99	0930	MW-02S	G	3V	H	GW	8240X pH, Scavo, Temp, DO. → Field ANALYZED
	1015	SW-120	G	3V	H	GW	SEE ATTACHED
	1040	P-35S	G	3V	H	GW	
	1105	P-36S	G	3V	H	GW	
	1210	SW-130	G	3V	H	GW	
	1225	MW-01S	G	3V	H	GW	
	1345	SW-110	G	3V	H	GW	
	1405	P-37S	G	3V	H	GW	
	1440	P-38S	G	3V	H	GW	
↓	1510	MW-21S	G	6V	H	GW	↓ **

Client Information

Company Name: Ciba -	Project Name / Location: CIBA SITE CLOANSTON
Address: Toms RIVER NJ	P.O. Number / Project Number:
City / State / Zip:	Project Manager / Report To:
Phone: 732-914-2537	Sampled by: Paul Perrotti / CATHAC
Contact: BARRY COHEN	Reference Proposal:

Relinquished by:	Date	Time	Received by:	Date	Time
	4-15-99	1445		4/15/99	1500

Turn Around Time:
<input checked="" type="checkbox"/> Normal
<input type="checkbox"/> 5 business days Surcharges may apply
<input type="checkbox"/> Rush (business days)

Project Comments:	0-chlorotoluene <1500	* * RUN MS,MSD ON MW-21S	RIAL USE ONLY:
* 0-chlorotoluene 1,2 Dichlorobenzene <94ppb Chlorobenzene <1700	Toluene <1700 Xylenes <76		<input type="checkbox"/> Pick-Up Only <input checked="" type="checkbox"/> RIAL Sampled <input type="checkbox"/> Shipped on Ice RIAL W.O. # 334

APPENDIX C
TIME-SERIES
FOR
UPGRADIENT WELLS

Table 3
UPGRADIENT WELLS
Cumulative Results for Chemicals Of Concern
(Units in ppb)

Well No.	Date Sampled	1,2-Dichloro-benzene	Chloro-benzene	o-Chloro-toluene	Toluene	Xylenes
MW-004S	6-Mar-96	89	210	1700	2100	300
MW-004S	1-May-96	88	130	1200	1500	160
MW-004S	9-Apr-97	43	44	160	88	100
MW-004S	8-Oct-97	72	41	660	370	480
MW-004S	28-Apr-98	40	220	1200	2700	130
MW-004S	15-Oct-98	100 U	580	300	100 U	100 U
MW-004S	16-Apr-99	50 U	50	50	50 U	730
MW-012S	5-Mar-96	4.3 U	2.4 J	2 U	2.8 U	75
MW-012S	2-May-96	4.3 U	1.5 J	2 U	2.8 U	42
MW-012S	10-Apr-97	1 U	1 U	1 U	1 U	1 U
MW-012S	8-Oct-97	1 U	1 U	1 U	1 U	12
MW-012S	28-Apr-98	1 U	1 U	1 U	1 U	65
MW-012S	15-Oct-98	10 U	10 U	10 U	10 U	87
MW-012S	16-Apr-99	10 U	12	10 U	10 U	24
MW-021S	6-Mar-96	43 U	30 U	480	12 J	34 U
MW-021S	1-May-96	22 U	5 J	820	15	17 U
MW-021S	10-Apr-97	1 U	1 U	120	1	6
MW-021S	27-Oct-97	30	49	24000	20000	1600
MW-021S	28-Apr-98	1 U	1 U	54	1 U	1 U
MW-021S	15-Oct-98	100 U	100 U	7900	2500	580
MW-021S	16-Apr-99	50 U	50 U	9000	50 U	520

MPS = Media Protection Standard

U = Nondetect with detection limit given

J = Estimated value

1,2 Dichlorobenzene MPS=94 PPB

Chlorobenzene MPS=1700 PPB

o-chlorotoluene MPS=1500 ppb

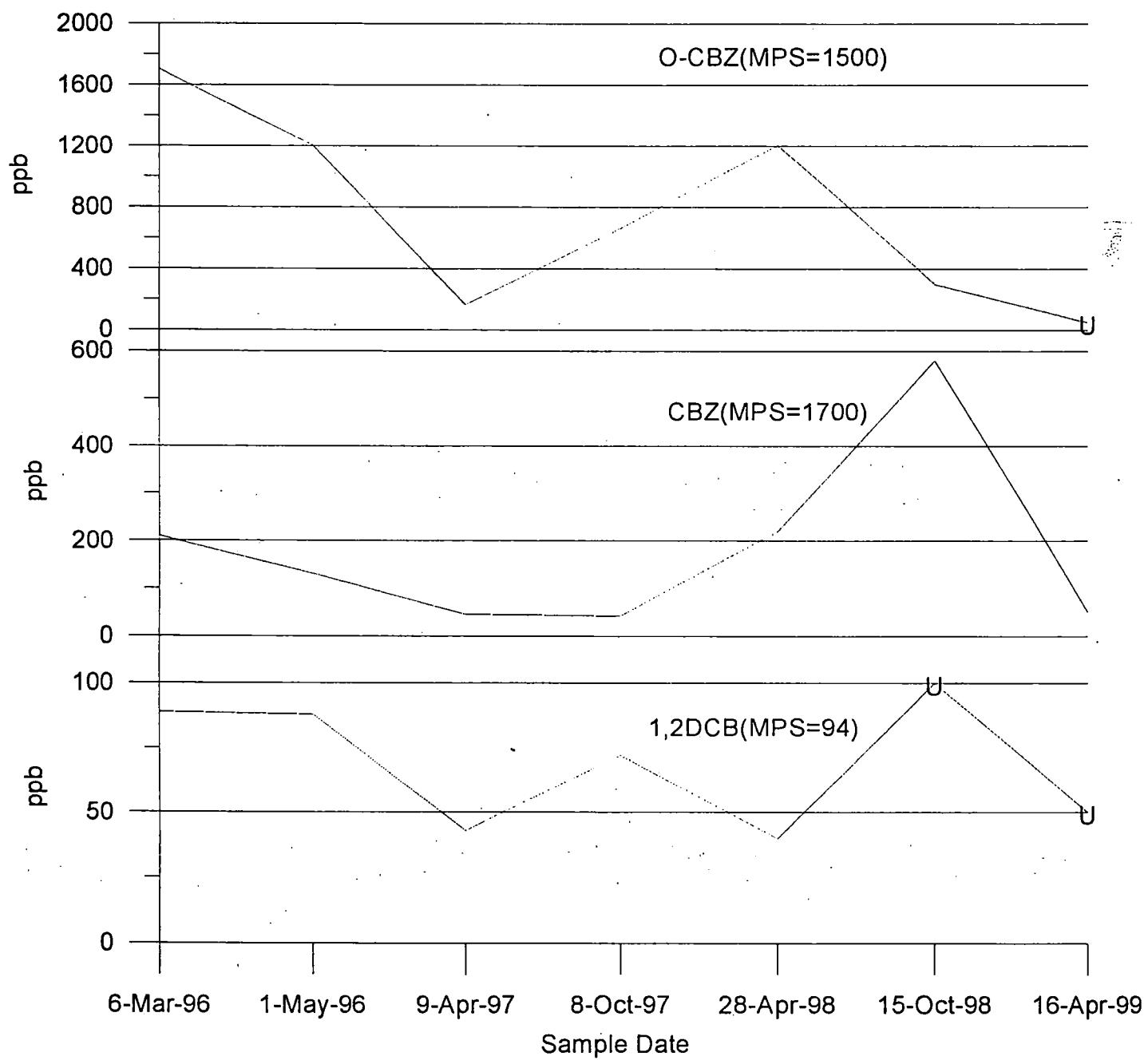
toluene MPS=1700 ppb

xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-004S
Upgradient Well

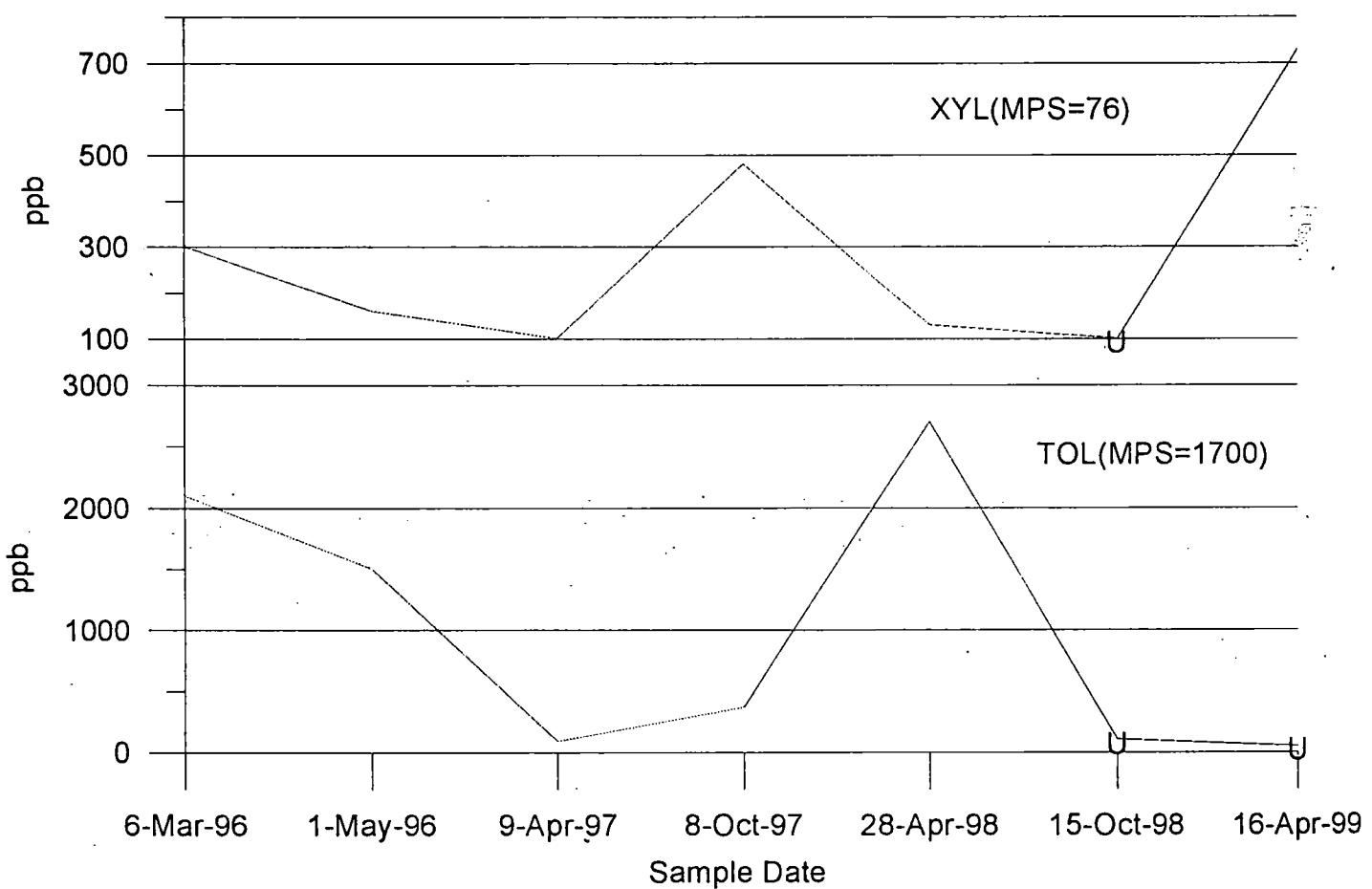
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-004S
Upgradient Well

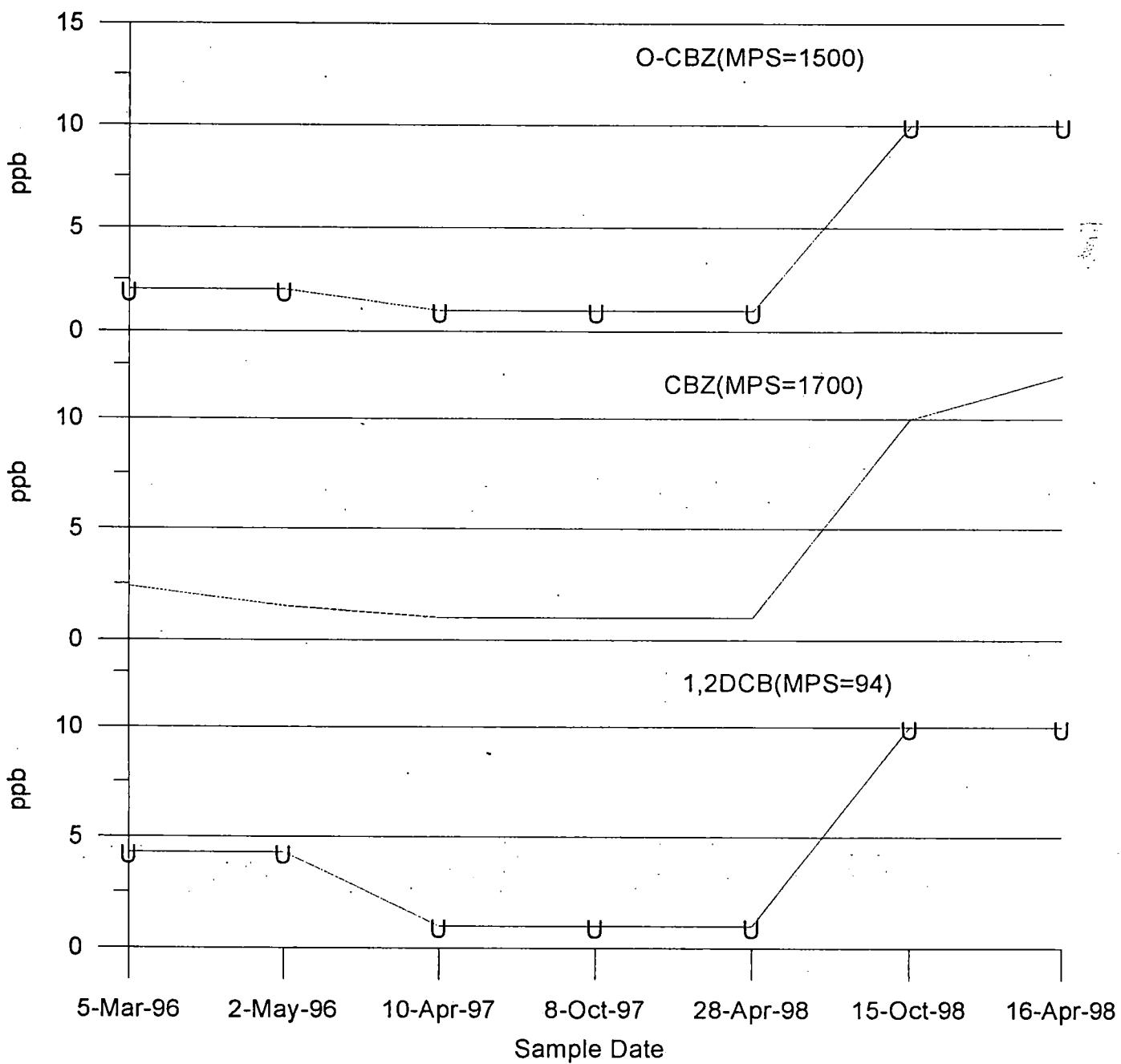
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-012S
Upgradient Well

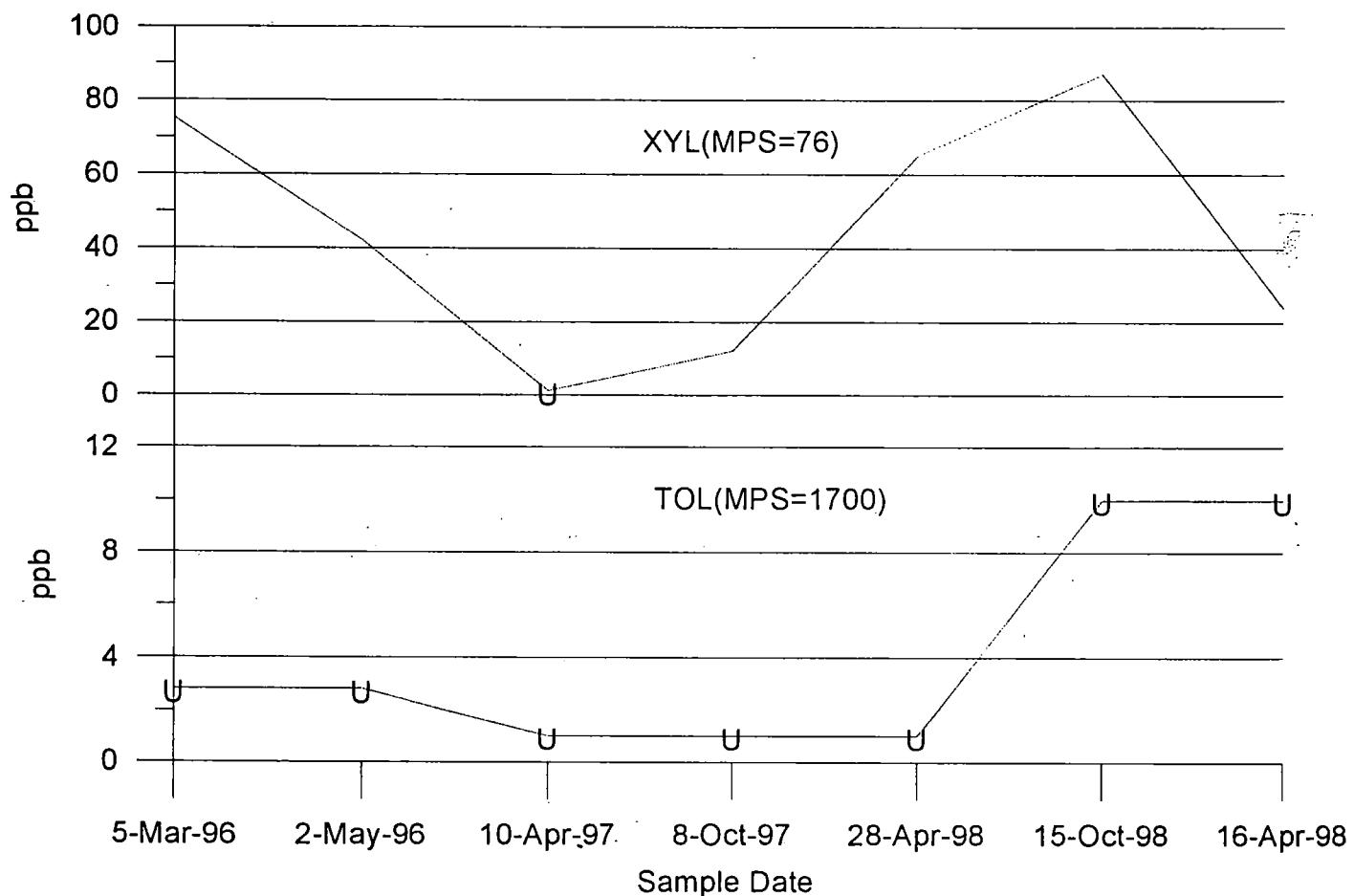
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-012S
Upgradient Well

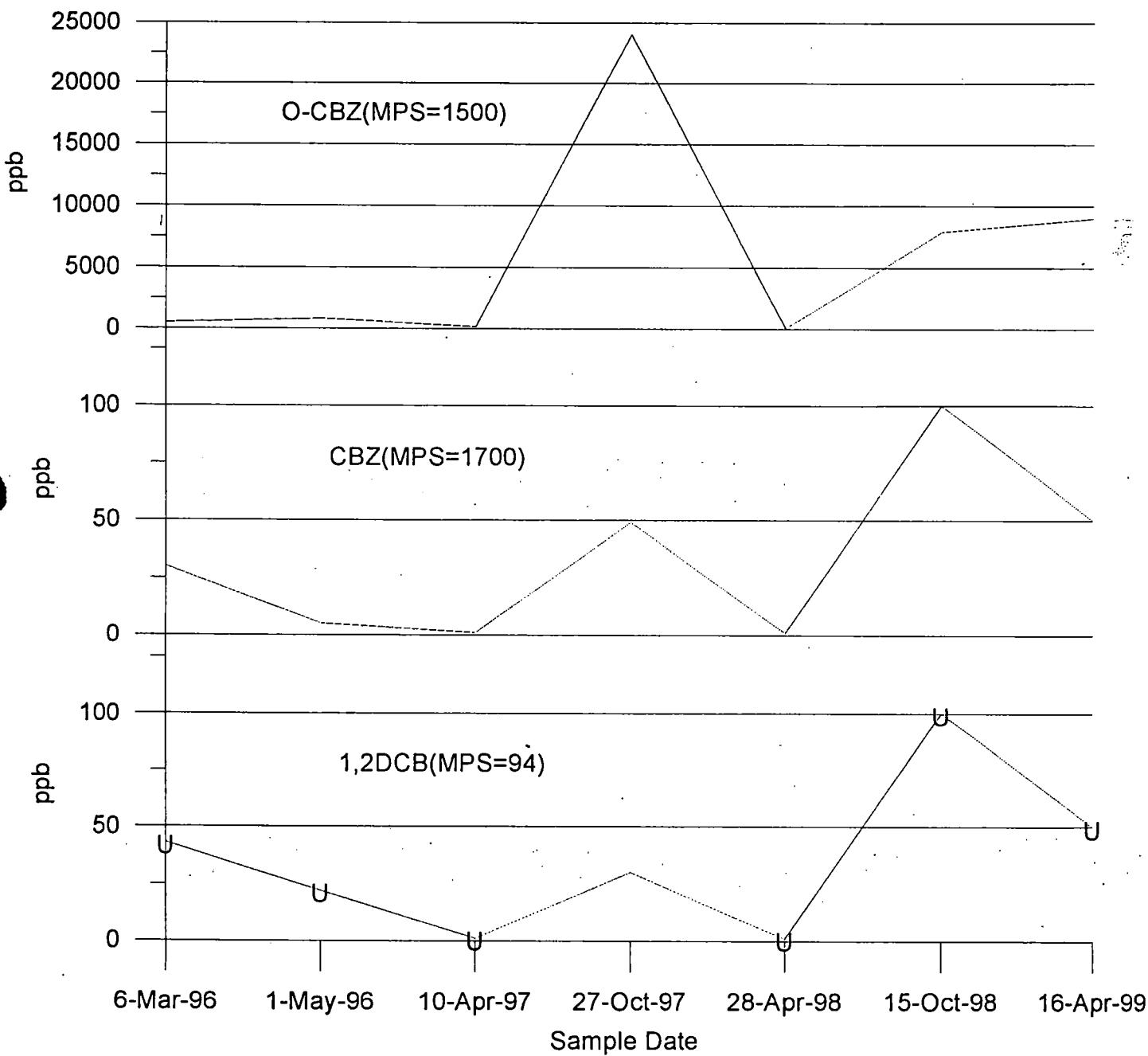
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-021S
Upgradient Well

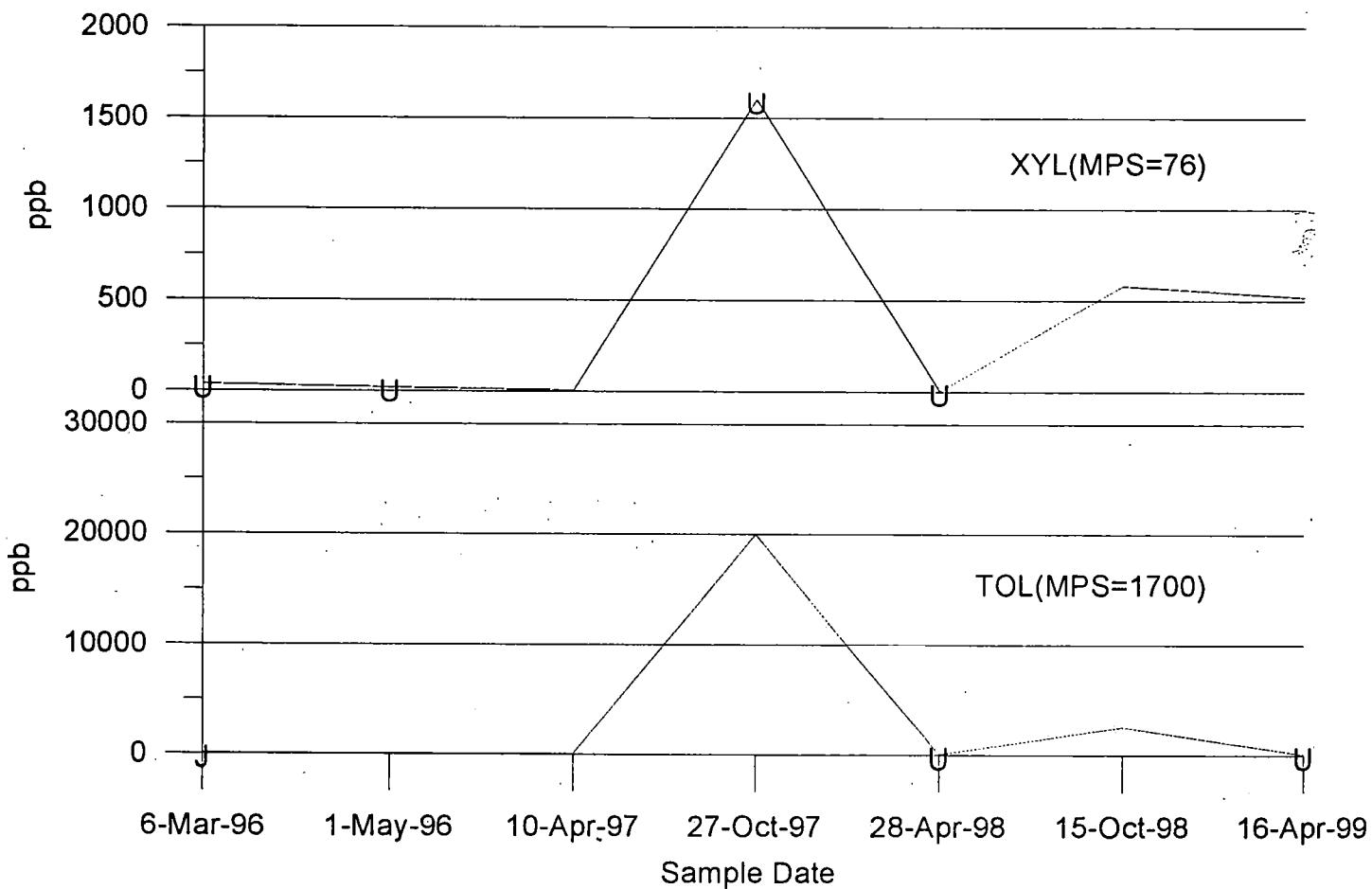
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-021S
Upgradient Well

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



APPENDIX D
TIME-SERIES GRAPHS
FOR
BULKHEAD WELLS

Table 4
BULKHEAD WELLS
Cumulative Results for Chemicals Of Concern
(Units in ppb)

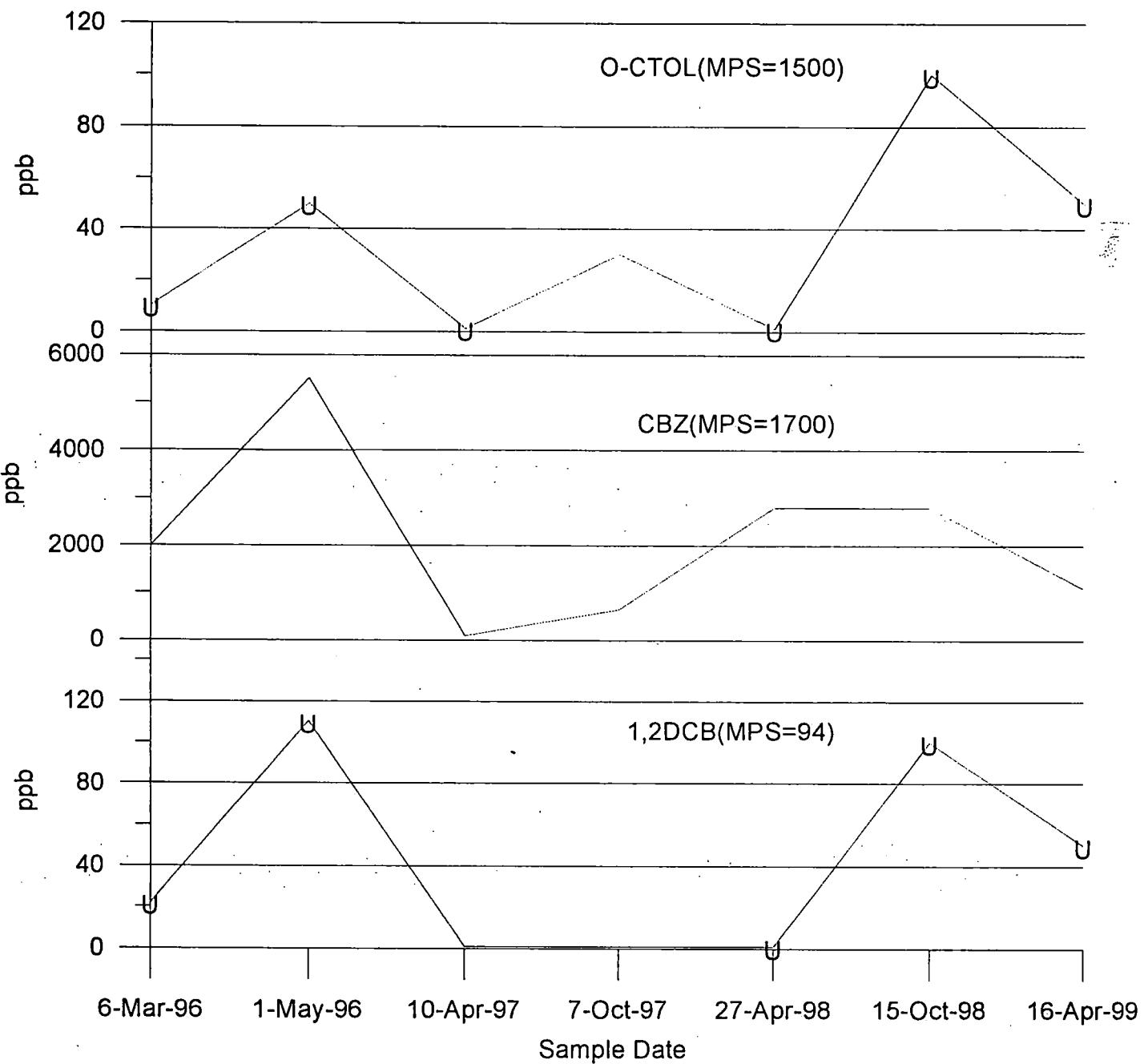
Well No.	Date Sampled	1,2-Dichloro-benzene	Chloro-benzene	o-Chloro-toluene	Toluene	Xylenes
MW-001S	6-Mar-96	22 U	2000	10 U	16	18
MW-001S	1-May-96	110 U	5500	50 U	30 J	85 U
MW-001S	10-Apr-97	1	93	1 U	9	7
MW-001S	7-Oct-97	1	640	30	23	2
MW-001S	27-Apr-98	1 U	2800	1 U	1	2
MW-001S	15-Oct-98	100 U	2800	100 U	100 U	100 U
MW-001S	16-Apr-99	50 U	1100	50 U	50 U	50 U
MW-002S	5-Mar-96	340	3200	50 U	200	85 U
MW-002S	30-Apr-96	44 J	2500	50 U	52 J	85 U
MW-002S	8-Apr-97	20	64	1 U	46	18
MW-002S	7-Oct-97	90	440	100	97	31
MW-002S	27-Apr-98	22	500	1 U	88	28
MW-002S	15-Oct-98	28	5200	1 U	92	34
MW-002S	16-Apr-99	140	2260	10 U	420	33
P-035S	8-Apr-97	22	74	1 U	4	12
P-035S	7-Oct-97	240	710	2	10	12
P-035S	27-Apr-98	42	360	1 U	2	10
P-035S	15-Oct-98	140	2100	10 U	130	80
P-035S	16-Apr-99	20	480	10 U	10 U	10 U
P-036S	6-Mar-96	22 U	440	10 U	14 U	17 U
P-036S	1-May-96	22 U	460	30	14 U	17 U
P-036S	8-Apr-97	1 U	72	1 U	1 U	2
P-036S	7-Oct-97	1 U	35	9	2	1 U
P-036S	27-Apr-98	1 U	260	1 U	1 U	1 U
P-036S	15-Oct-98	1 U	230	1 U	1 U	1
P-036S	16-Apr-99	10 U	200	10 U	10 U	10 U
P-037S	9-Apr-97	2 U	54	16	1 U	1
P-037S	8-Oct-97	2	50	13	1 U	1 U
P-037S	28-Apr-98	2	420	8	1 U	1 U
P-037S	15-Oct-98	30 U	540	30 U	30 U	30 U
P-037S	16-Apr-99	10 U	210	10 U	10 U	10 U
P-038S	6-Mar-96	4.3 U	2.4 J	2 U	1.3 J	3.4 U
P-038S	1-May-96	4.3 U	1.2 J	2 U	2.8 U	3.4 U
P-038S	9-Apr-97	1 U	1 U	1 U	1 U	1 U
P-038S	8-Oct-97	1 U	1 U	1 U	1 U	1 U
P-038S	28-Apr-98	1 U	1 U	1 U	1 U	1 U
P-038S	15-Oct-98	1 U	2	1 U	1 U	1 U
P-038S	16-Apr-99	1 U	1 U	1 U	1 U	1 U

MPS = Media Protection Standard
U = Nondetect with detection limit given
J = Estimated value
1,2 Dichlorobenzene MPS=94 PPB
Chlorobenzene MPS=1700 PPB
o-chlorotoluene MPS=1500 ppb
toluene MPS=1700 ppb
xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-001S
Along Bulkhead

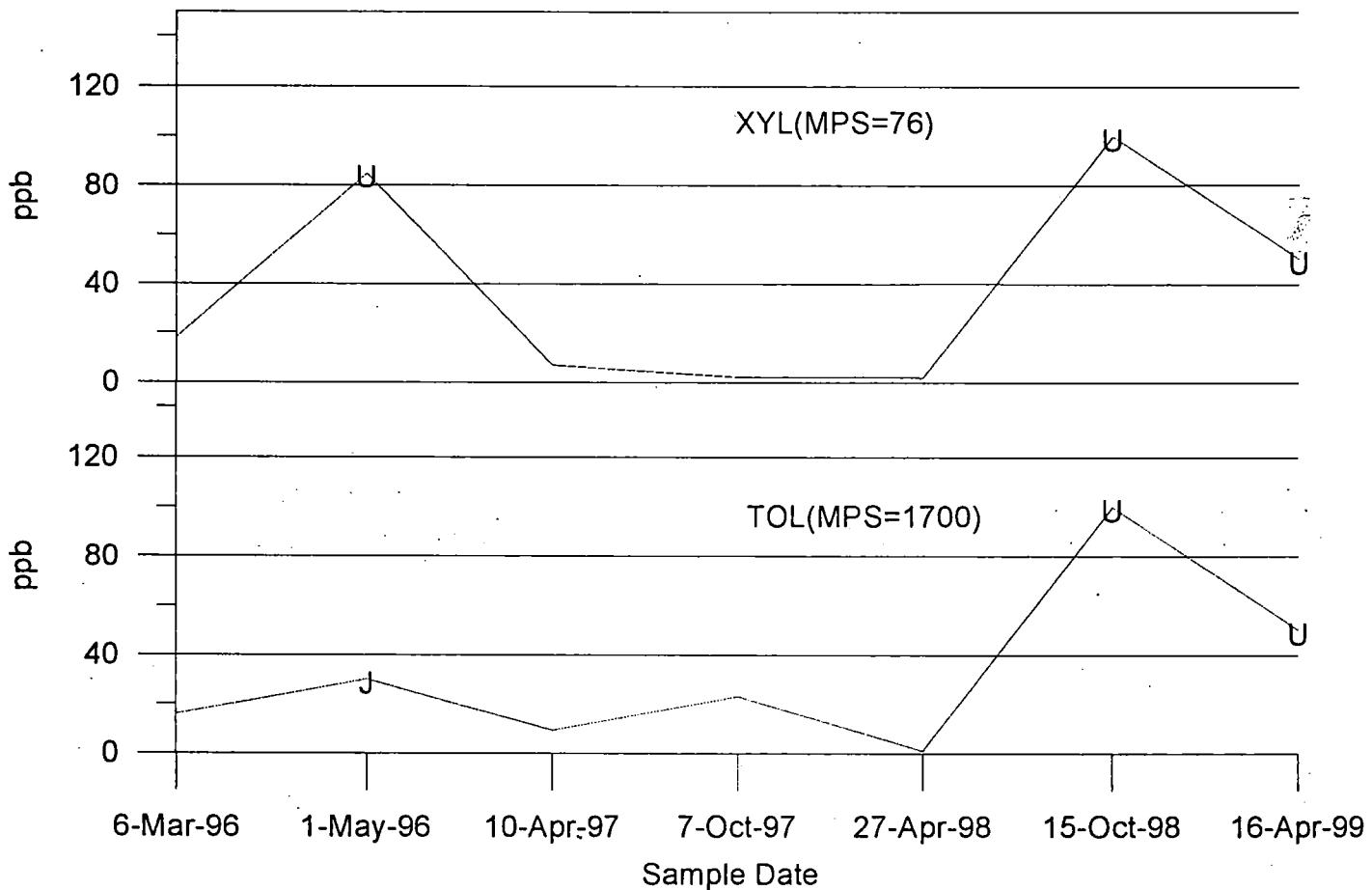
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp.
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-001S
Along Bulkhead

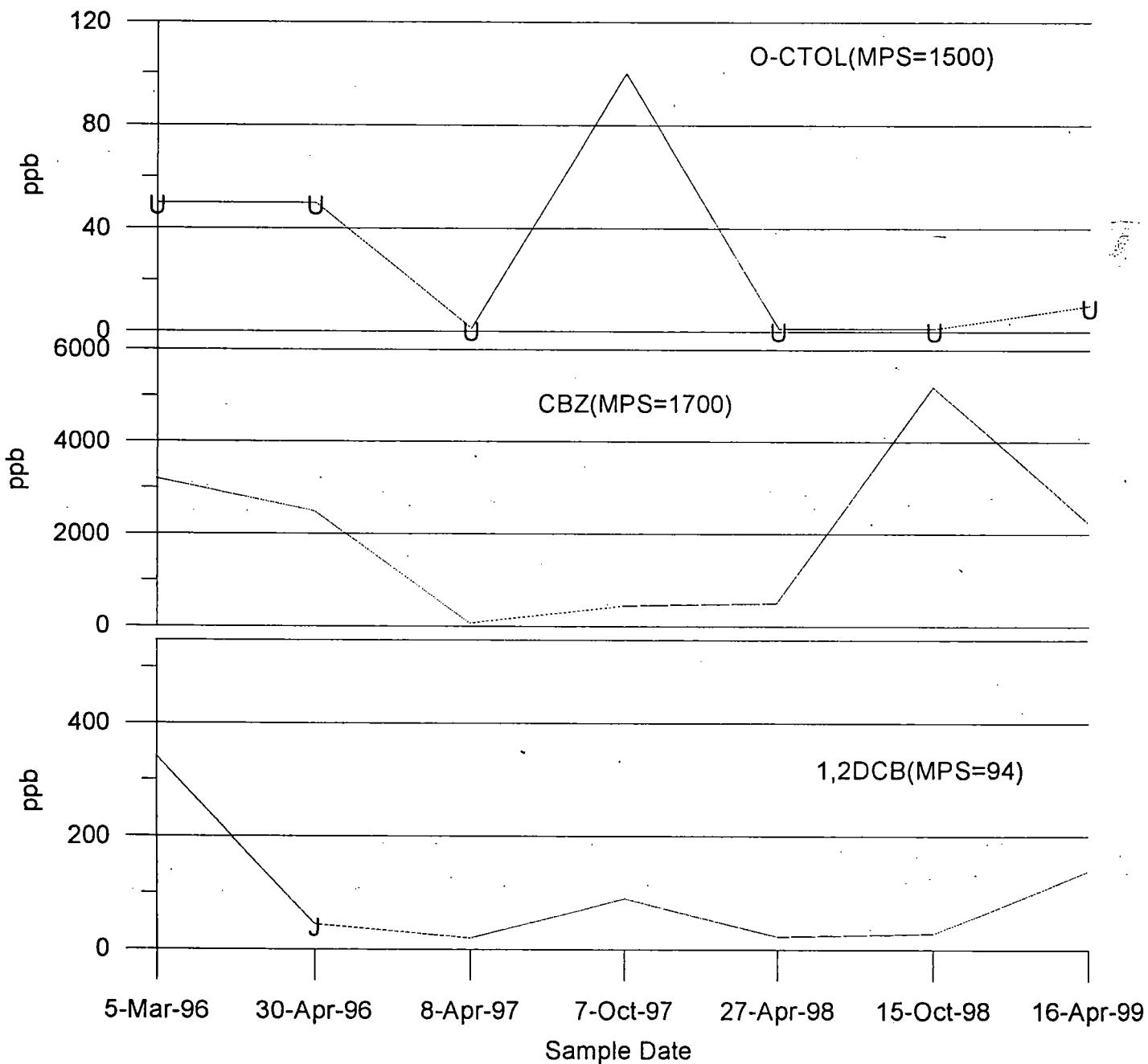
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-002S
Along Bulkhead

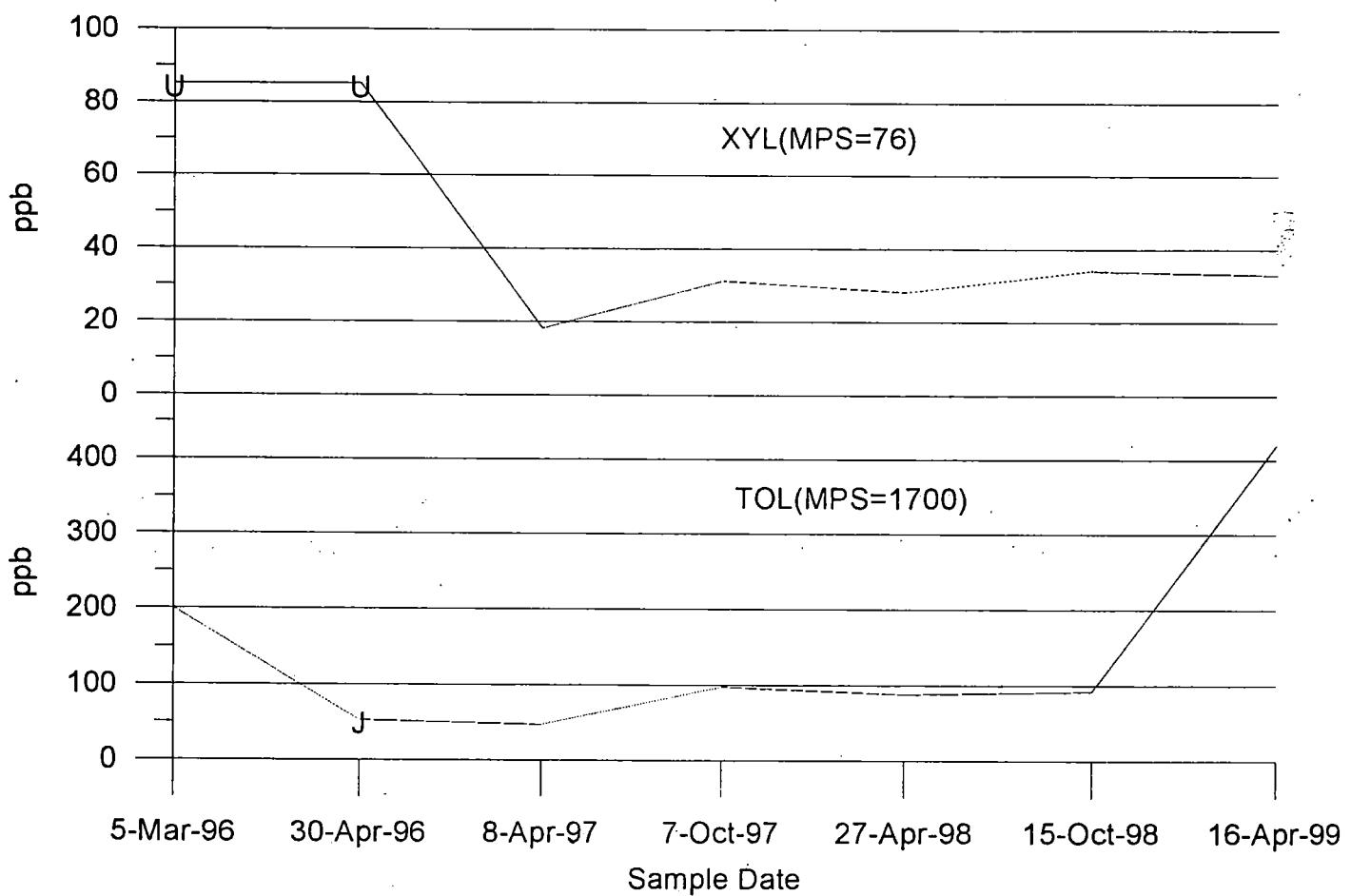
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well MW-002S
Along Bulkhead

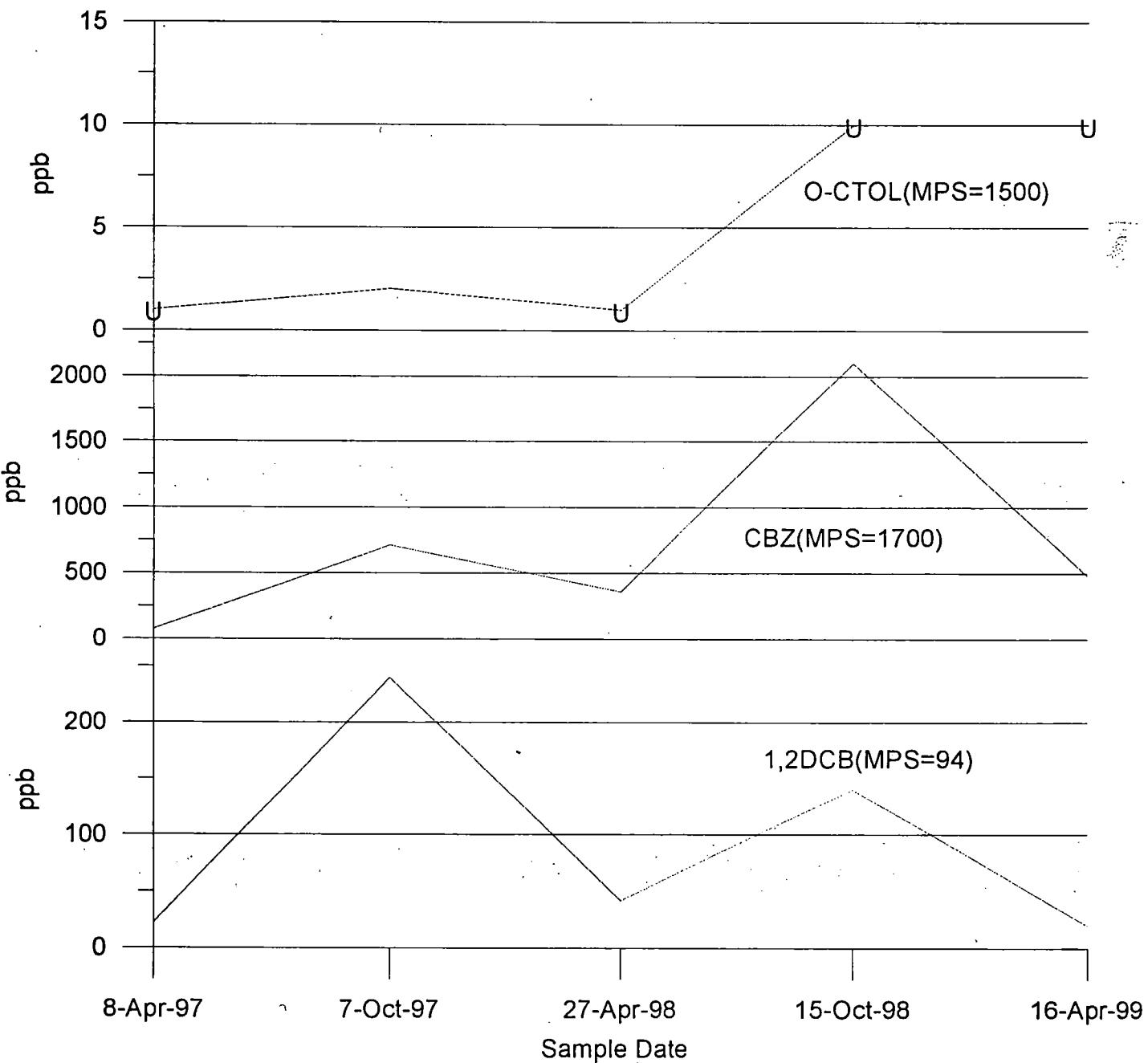
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-035S
Along Bulkhead

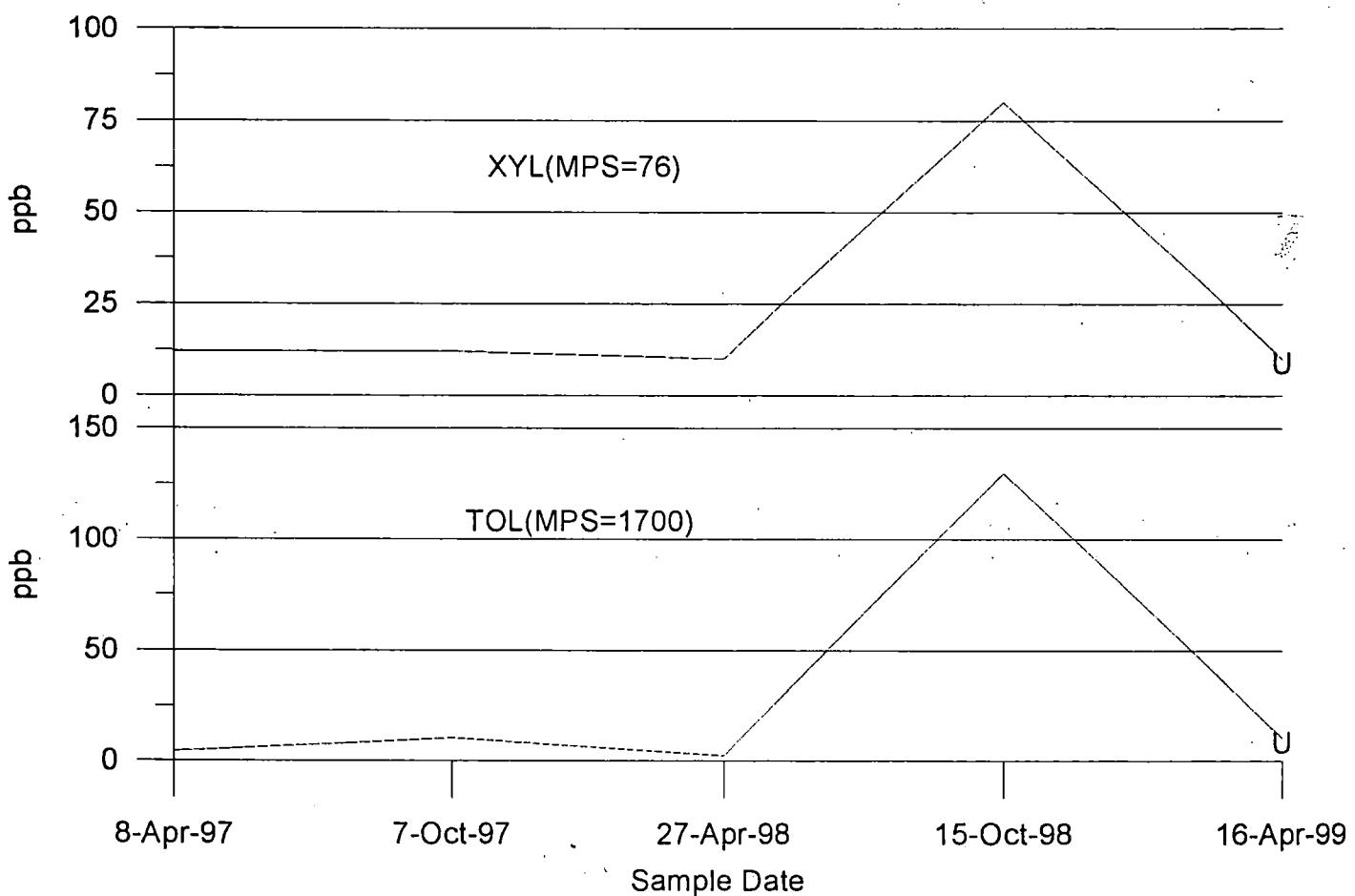
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-035S
Along Bulkhead

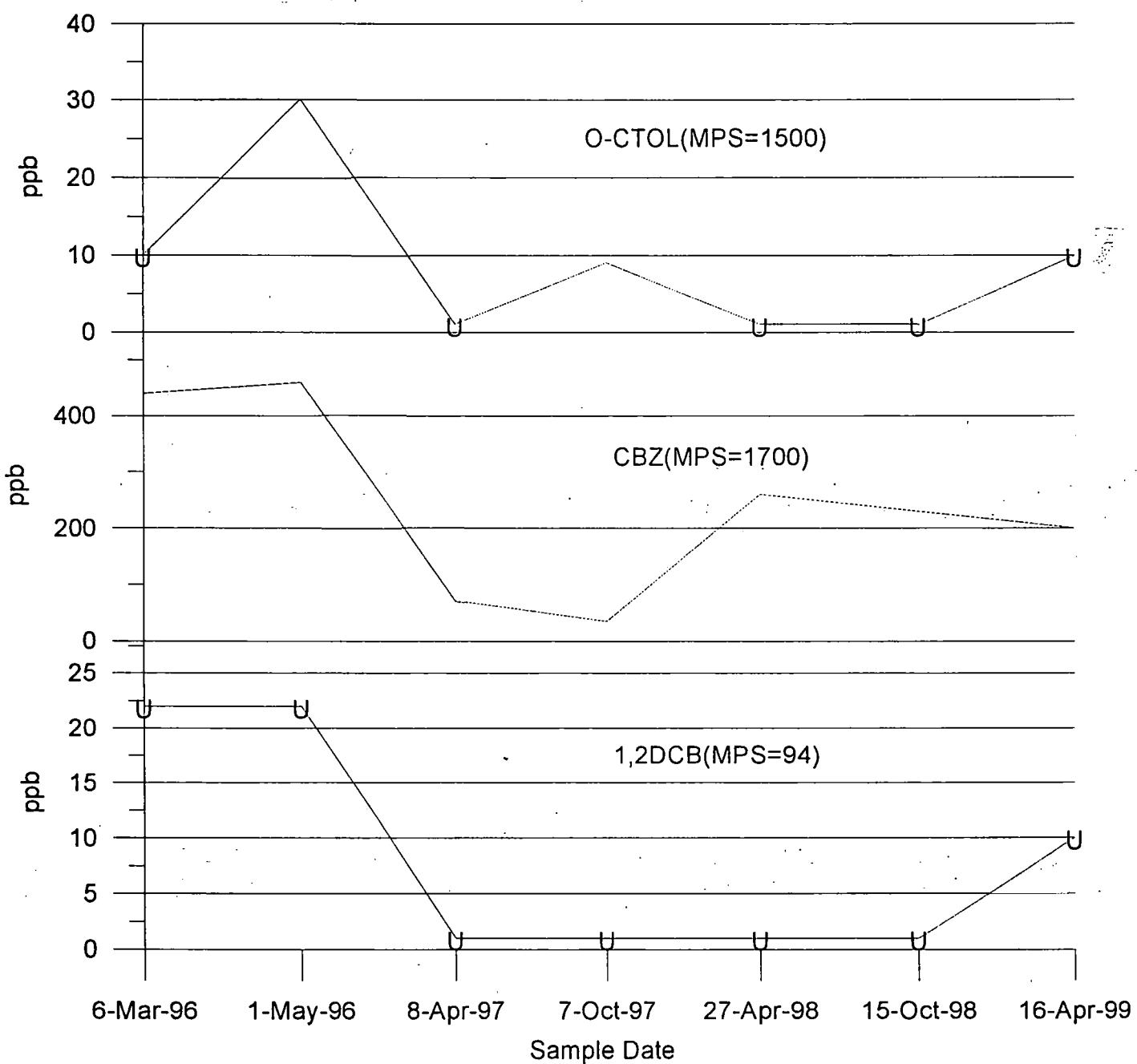
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"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-036S
Along Bulkhead

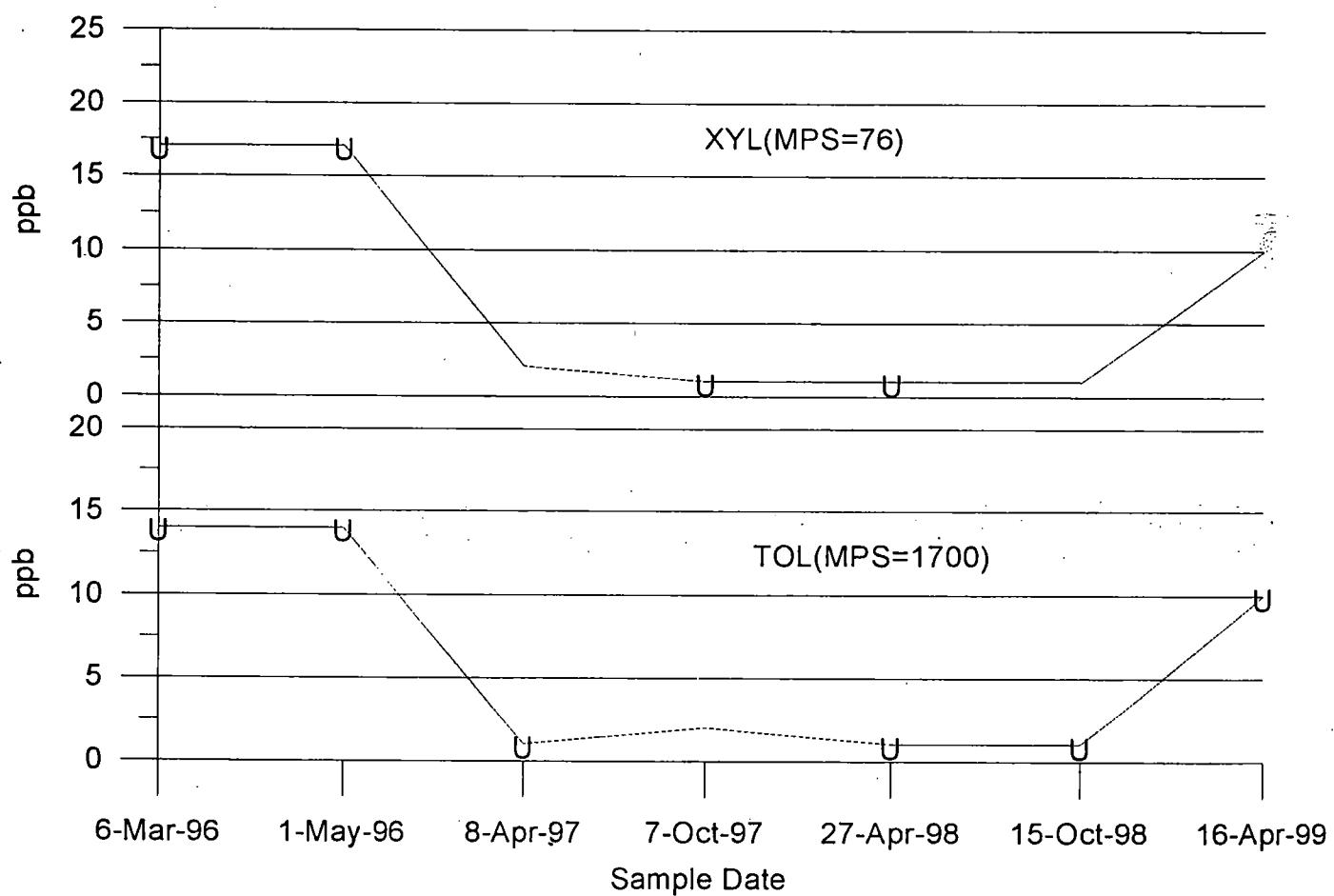
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-036S
Along Bulkhead

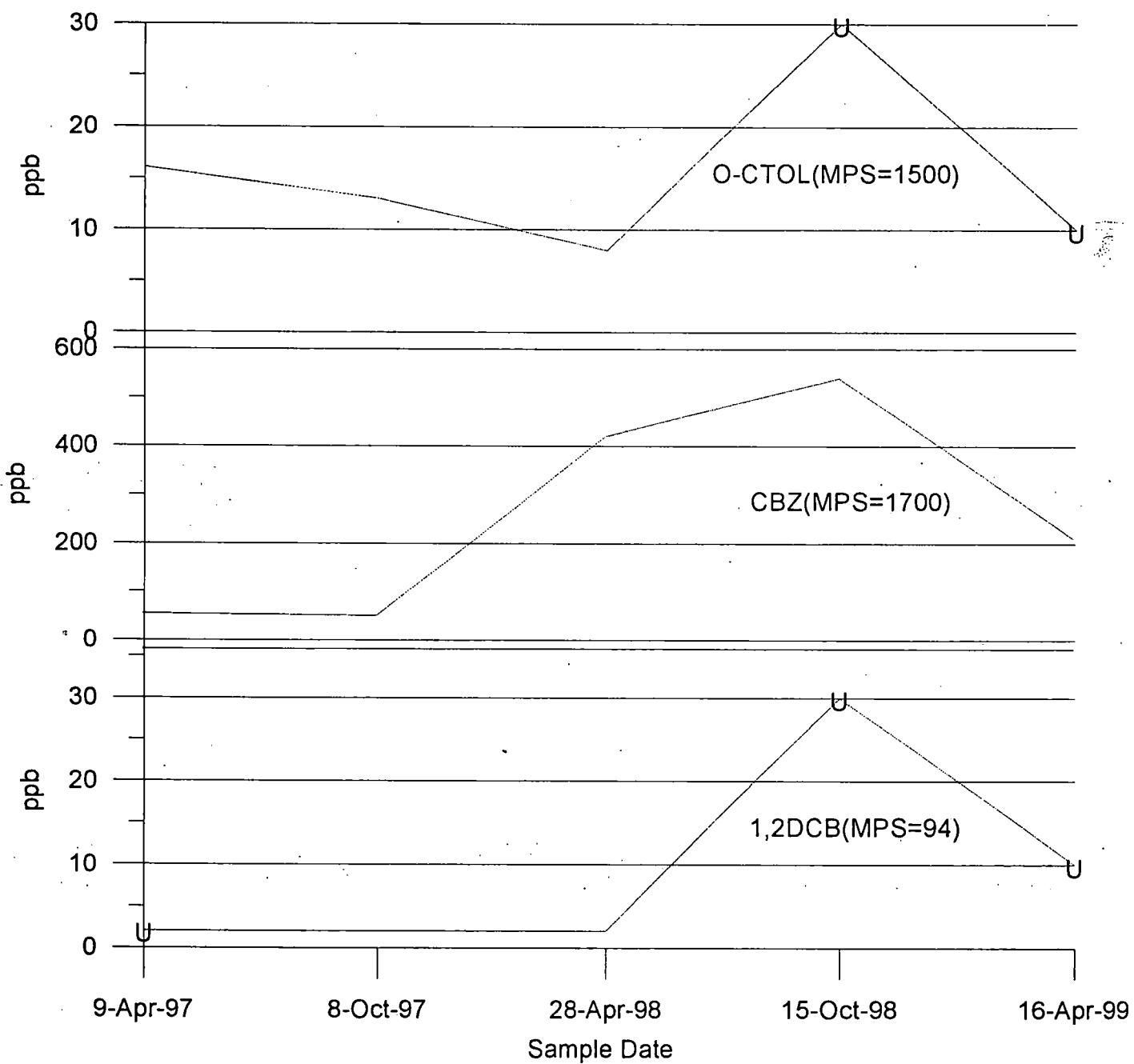
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-037S
Along Bulkhead

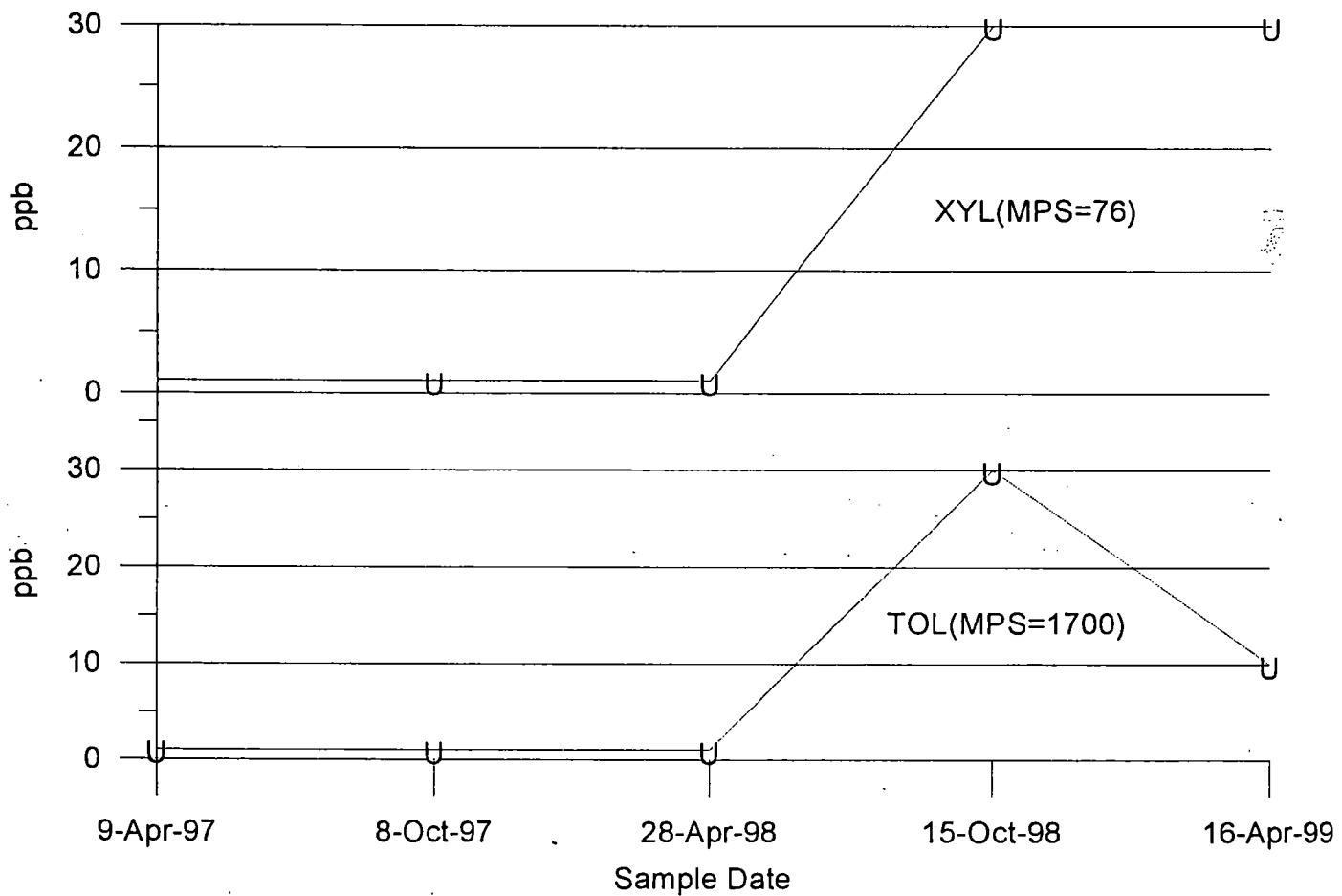
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-037S
Along Bulkhead

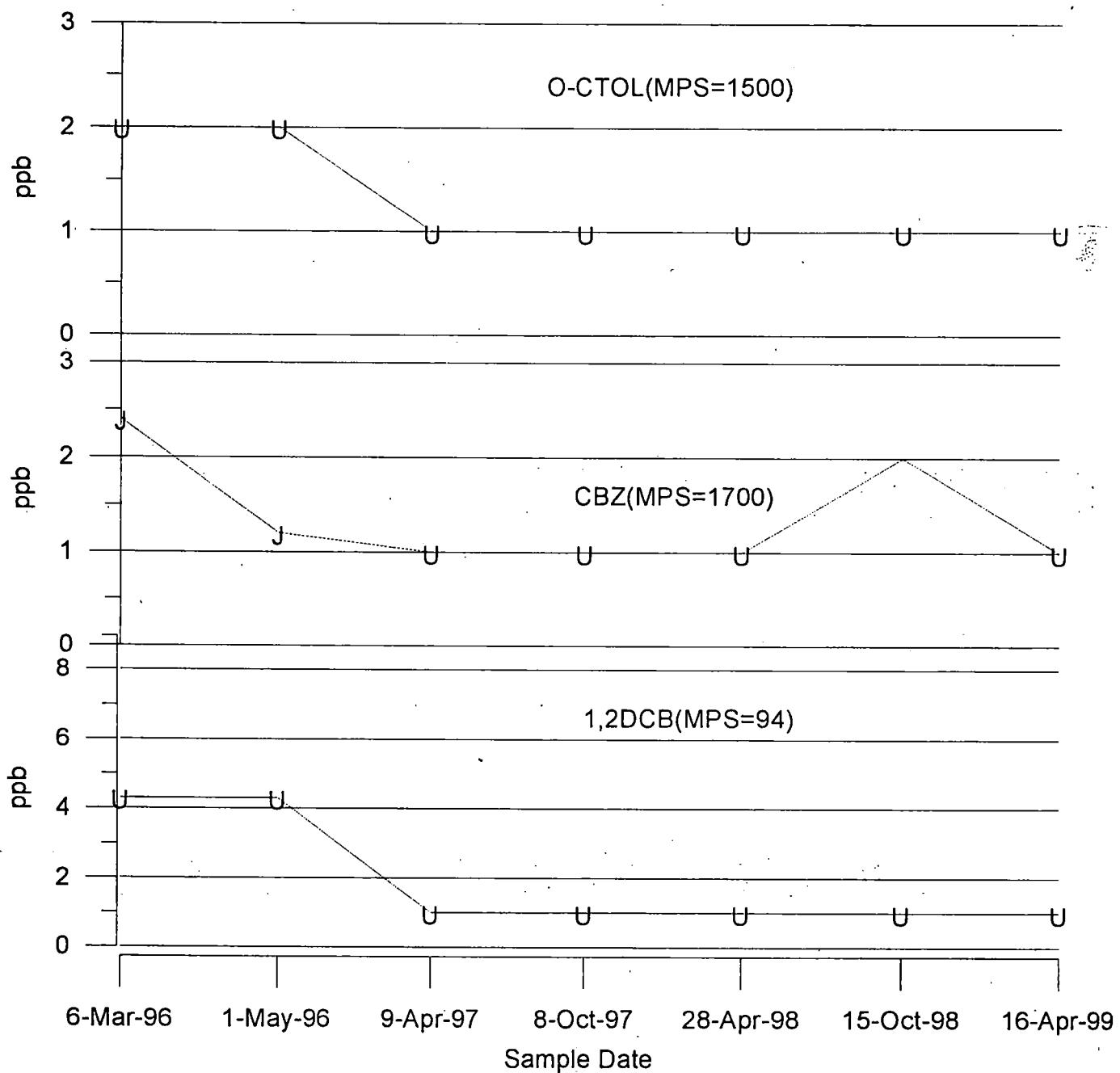
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-038S
Along Bulkhead

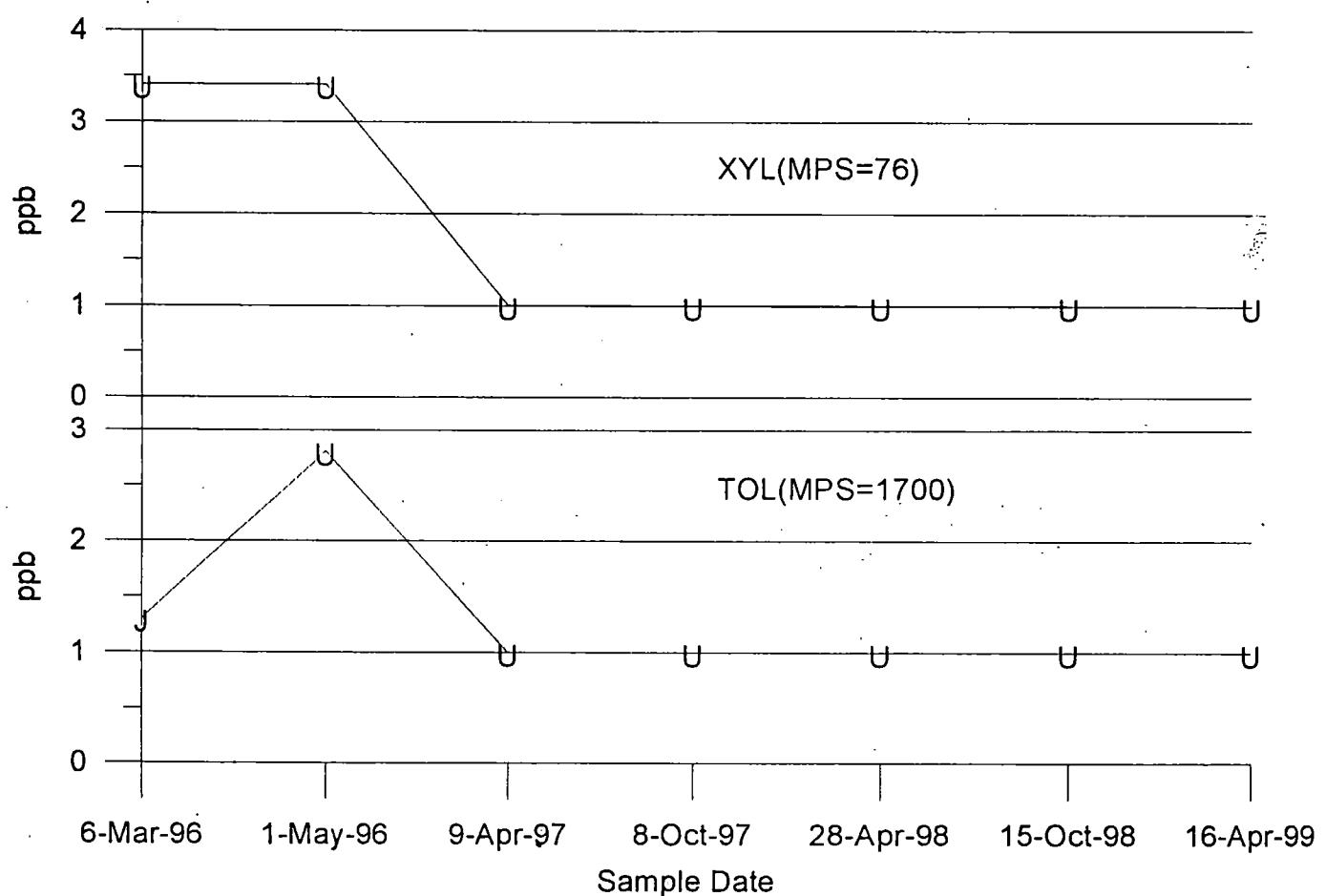
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well P-038S
Along Bulkhead

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



APPENDIX E
TIME-SERIES GRAPHS
FOR
IN-RIVER WELLS

Table 5
IN-RIVER WELLS
Cumulative Results for Chemicals Of Concern
(Units in ppb)

Well No.	Date Sampled	1,2-Dichloro-benzene	Chloro-benzene	o-Chloro-toluene	Toluene	Xylenes
SW-110	6-Mar-96	54	1600	55	460	34 U
SW-110	2-May-96	63 J	1600	40 U	220	68 U
SW-110	10-Apr-97	23	110	1	62	8
SW-110	8-Oct-97	1 U	1 U	1 U	1 U	1 U
SW-110	27-Apr-98	21	1100	2	170	6
SW-110	15-Oct-98	100 U	440	100 U	100 U	100 U
SW-110	16-Apr-99	50 U	670	50 U	50 U	50 U
SW-120	5-Mar-96	4.3 U	63	2 U	2.8 U	3.4 U
SW-120	30-Apr-96	4.3 U	70	2 U	2.8 U	3.4 U
SW-120	8-Apr-97	1 U	43	1 U	1 U	1 U
SW-120	7-Oct-97	1 U	39	39	31	2
SW-120	27-Apr-98	1 U	54	1 U	1 U	1 U
SW-120	15-Oct-98	1 U	36	1 U	1 U	1 U
SW-120	16-Apr-99	10 U	92	10 U	10 U	10 U
SW-130	6-Mar-96	4.3 U	3 U	6.5	2.8 U	3.4 U
SW-130	1-May-96	4.3 U	3 U	12	2.8 U	3.4 U
SW-130	9-Apr-97	1 U	1	12	1 U	1 U
SW-130	7-Oct-97	1 U	1 U	2	1 U	1 U
SW-130	27-Apr-98	1 U	27	14	1 U	1 U
SW-130	15-Oct-98	1 U	1 U	1	1 U	1 U
SW-130	16-Apr-99	1 U	5	5	1 U	1 U

MPS = Media Protection Standard

U = Nondetect with detection limit given

J = Estimated value

1,2 Dichlorobenzene MPS=94 PPB

Chlorobenzene MPS=1700 PPB

o-chlorotoluene MPS=1500 ppb

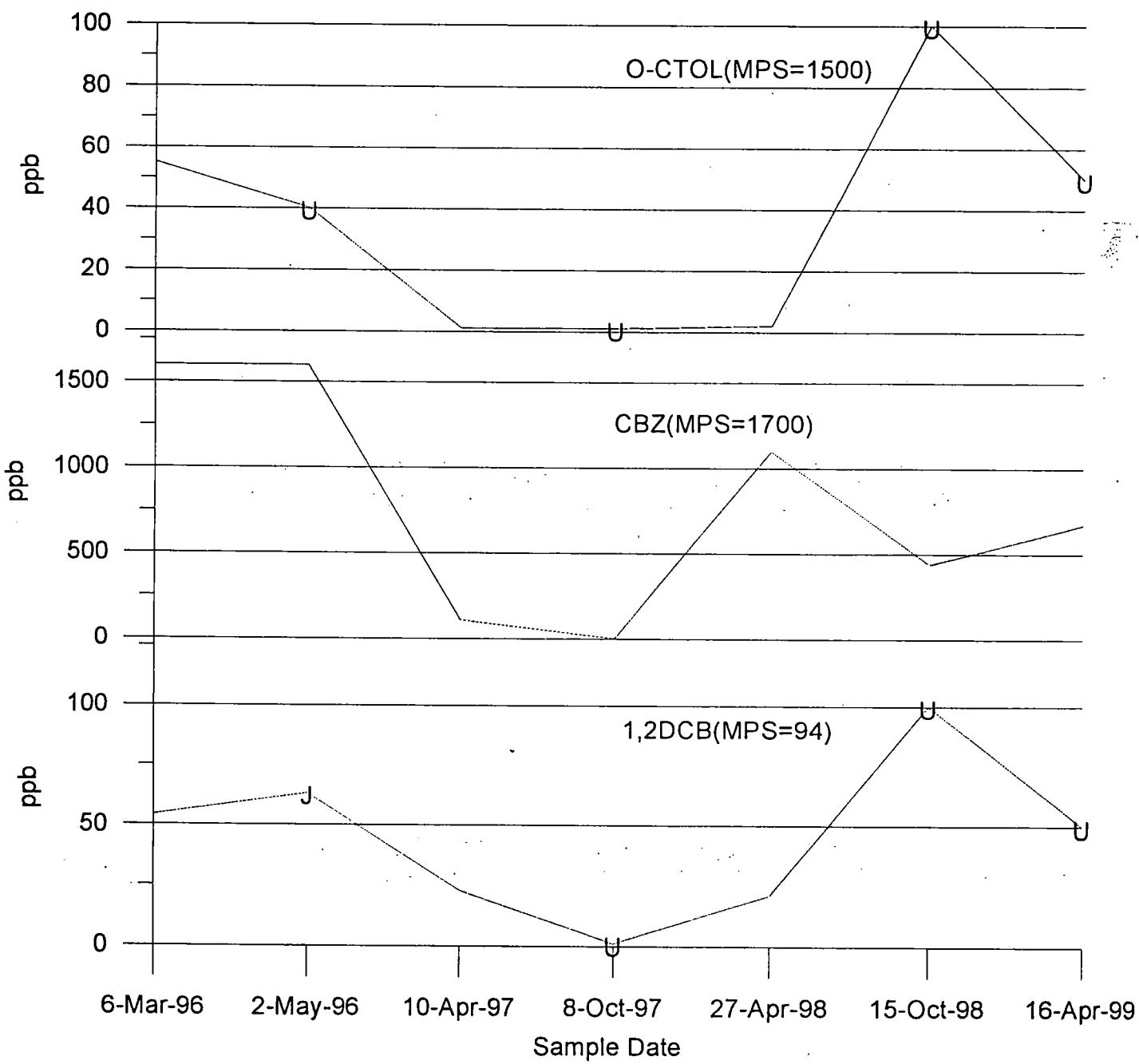
toluene MPS=1700 ppb

xylenes MPS=76 ppb

Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-110
In-River Wells

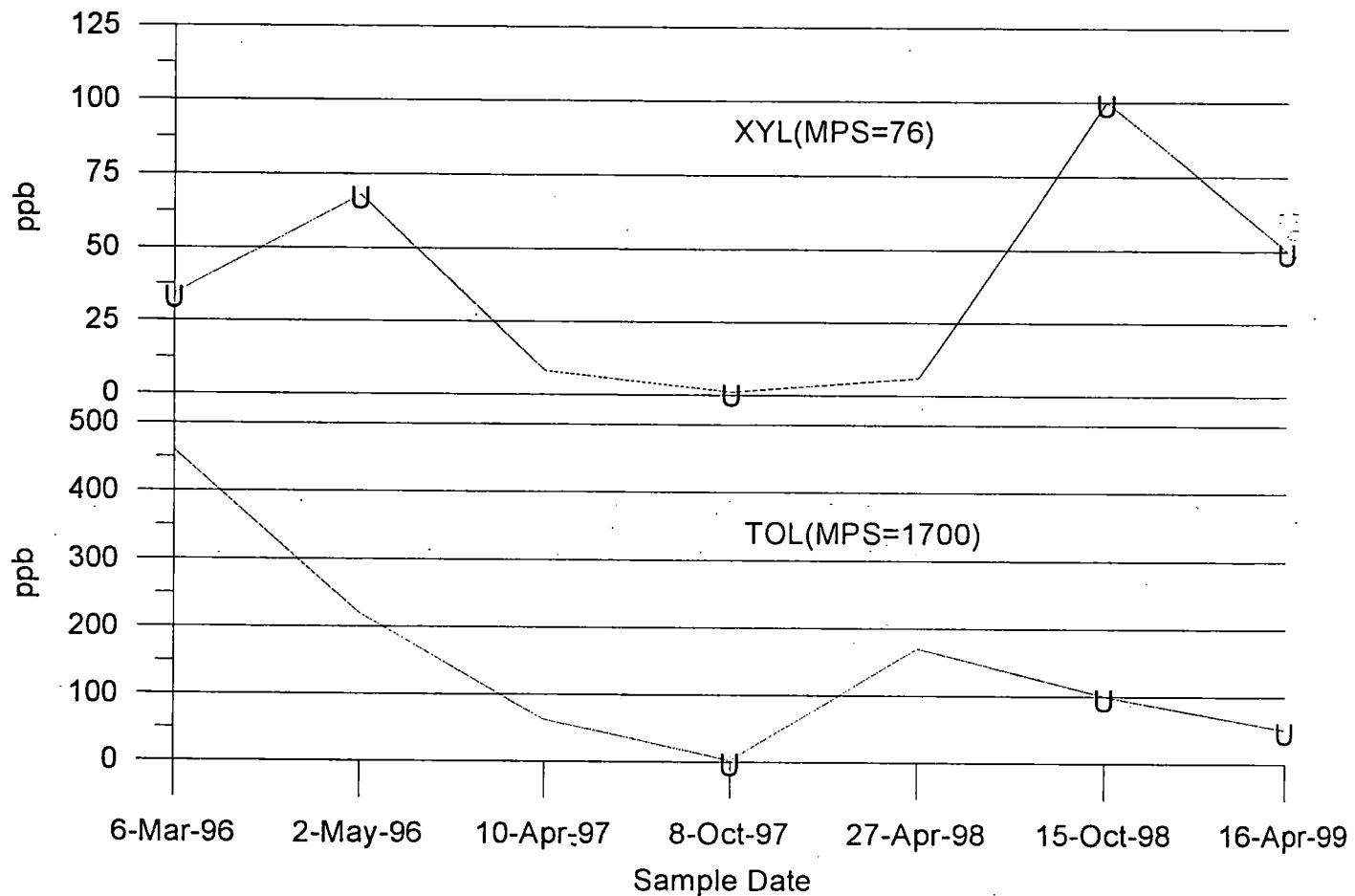
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-110
In-River Well

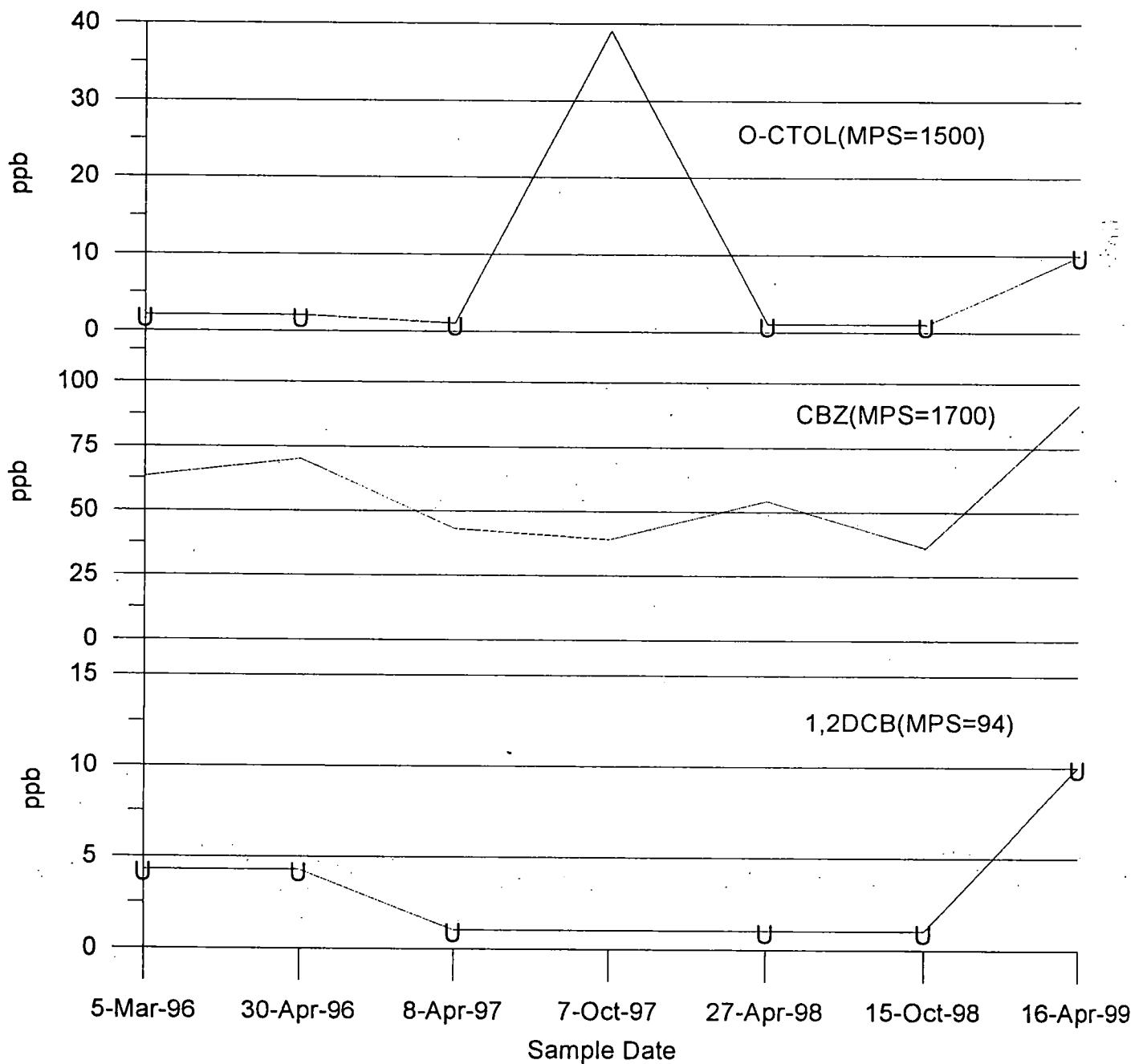
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"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-120
In-River Well

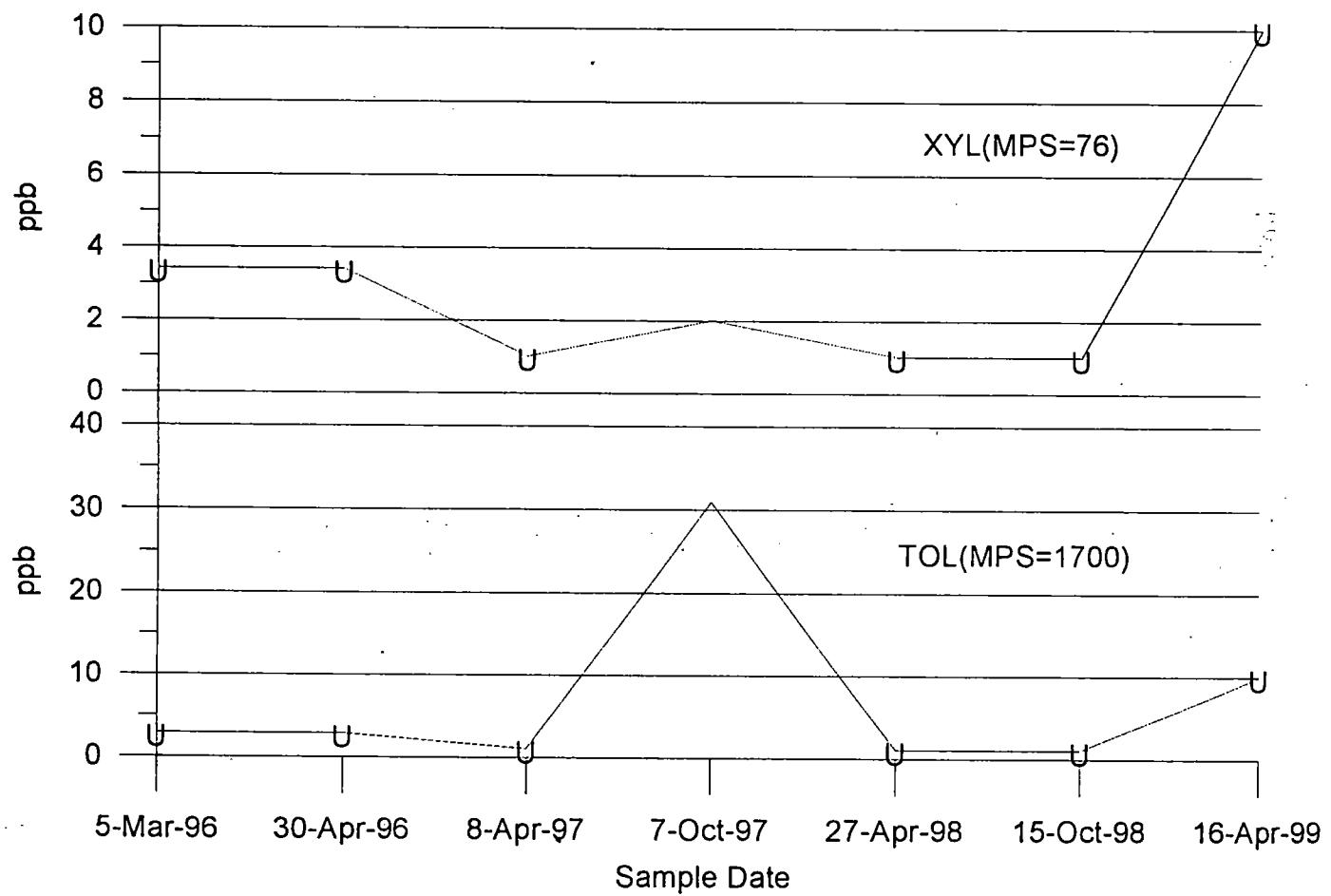
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-120
In-River Well

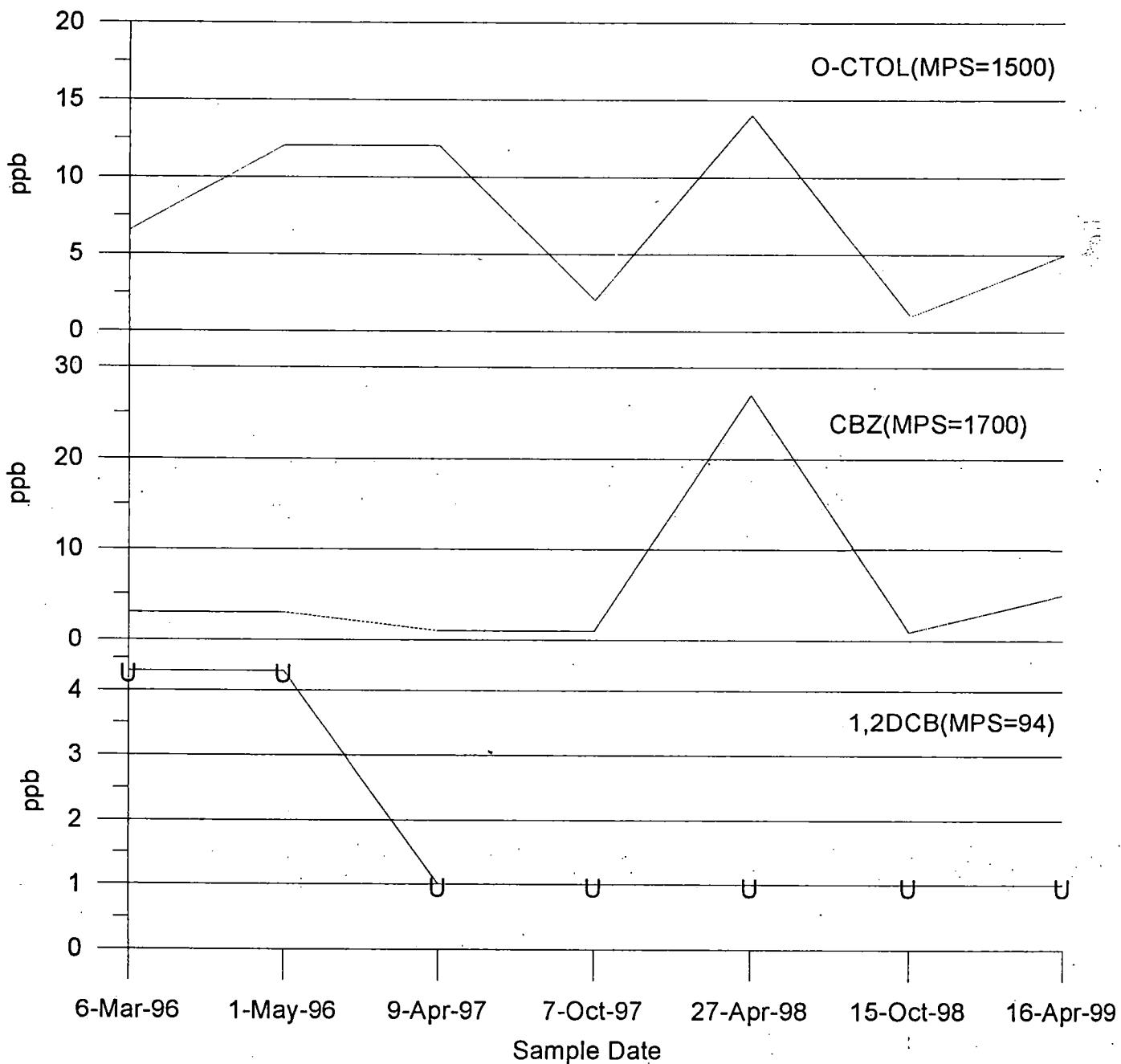
"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-130
In-River Well

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.



Ciba Specialty Chemicals Corp
Cranston Rhode Island Facility
Time-Series Graph
Semiannual Monitoring

Well SW-130
In-River Well

"U"=Nondetect
"J"=Estimated Value
MPS=Media Protection Std.

